IN THE UNITED STATES DISTRICT COURT
FOR THE EASTERN DISTRICT OF TEXAS
SHERMAN DIVISION

INNOVATION SCIENCES, LLC,	
Plaintiff,	Civil Action No.4:18-cv-00474-ALM
v.	JURY TRIAL DEMANDED
AMAZON.COM, INC., AMAZON DIGITAL SERVICES, INC., AMAZON DIGITAL SERVICES, LLC, AMAZON WEB SERVICES, LLC, AMAZON WEB SERVICES, INC., and AMAZON FULFILLMENT SERVICES, INC.,	
Defendants.	

COMPLAINT FOR PATENT INFRINGEMENT

Plaintiff Innovation Sciences, LLC ("Innovation" or "Plaintiff"), for its Complaint

against Defendant Amazon.com, Inc., Amazon Digital Services, Inc., Amazon Digital Services,

LLC, Amazon Web Services, LLC, Amazon Web Services, Inc., and Amazon Fulfillment

Services, Inc. (individually and collectively, "Amazon" or "Defendant(s)"), alleges the

following:

NATURE OF THE ACTION

1. This is an action for patent infringement arising under the Patent Laws of the United

States, 35 U.S.C. § 1 *et seq.*

THE PARTIES

2. Plaintiff is a company organized under the laws of the State of Texas with a place of

business at 5800 Legacy Circle, Suite 311, Plano, Texas 75024.

3.   Upon information and belief, Defendant Amazon.com, Inc. is a corporation organized and existing under the laws of Delaware, with its principal place of business located at 410 Terry Avenue North, Seattle, WA 98109, and can be served through its registered agent, Corporation Service Company, 251 Little Falls Drive, Wilmington, DE 19808 ("Amazon.com"). Upon information and belief, Defendant Amazon Digital Services, Inc. is a corporation organized and existing under the laws of Delaware, with its principal place of business located at 410 Terry Avenue North, Seattle, WA 98109, and can be served through its registered agent, Corporation Service Company, 251 Little Falls Drive, Wilmington, DE 19808 ("ADS, Inc."). Upon information and belief, Defendant Amazon Digital Services, LLC is a corporation organized and existing under the laws of Delaware, with its principal place of business located at 410 Terry Avenue North, Seattle, WA 98109, and can be served through its registered agent, Corporation Service Company, 251 Little Falls Drive, Wilmington, DE 19808 ("ADS, LLC"). Upon information and belief, Defendant Amazon Web Services, LLC is a corporation organized and existing under the laws of Delaware, with its principal place of business located at 410 Terry Avenue North, Seattle, WA 98109, and can be served through its registered agent, Corporation Service Company, 251 Little Falls Drive, Wilmington, DE 19808 ("AWS, LLC"). Upon information and belief, Defendant Amazon Web Services, Inc. is a corporation organized and existing under the laws of Delaware, with its principal place of business located at 410 Terry Avenue North, Seattle, WA 98109, and can be served through its registered agent, Corporation Service Company, 251 Little Falls Drive, Wilmington, DE 19808 ("AWS, Inc."). Upon information and belief, Defendant Amazon Fulfillment Services, Inc. is a corporation organized and existing under the laws of Delaware, with its principal place of business located at 410 Terry Avenue North, Seattle, WA 98109, and can be served through its registered agent, Corporation

Service Company, 251 Little Falls Drive, Wilmington, DE 19808 ("AFS"). Amazon.com, ADS,

Inc., ADS, LLC, AWS, LLC, AWS, Inc., and AFS are collectively and individually referred to

hereafter as "Amazon" or "Defendant". Upon information and belief, Amazon sells and offers to

sell products and services throughout the United States, including in this judicial district, and

introduces products and services that into the stream of commerce and that incorporate infringing

technology knowing that they would be sold in this judicial district and elsewhere in the United

States.

JURISDICTION AND VENUE

4.   This is an action for patent infringement arising under the Patent Laws of the

United States, Title 35 of the United States Code.

5.   This Court has subject matter jurisdiction under 28 U.S.C. §§ 1331 and 1338(a).

6.   Venue is proper in this judicial district pursuant to 28 U.S.C. § 1391 and 1400(b)

because, among other things, Defendant is subject to personal jurisdiction in this Judicial

District, has a regular and established place of business in this judicial district including Amazon

Fulfillment Centers in this judicial district, has purposely transacted business involving the

accused products in this judicial district, including sales to one or more customers in Texas, and

certain of the acts complained of herein occurred in this judicial district.

7.   On information and belief, Defendant is subject to this Court's general and

specific personal jurisdiction because it has sufficient minimum contacts within the State of

Texas and this District, pursuant to due process and/or the Texas Long Arm Statute because

Defendant purposefully availed itself of the privileges of conducting business in the State of

Texas and in this District, because Defendant regularly conducts and solicits business within the

State of Texas and within this District, and because Plaintiff's causes of action arise directly

from each of Defendant's business contacts and other activities in the State of Texas and this

District.

COUNT I – INFRINGEMENT OF U.S. PATENT NO. 9,912,983

8.   The allegations set forth in the foregoing paragraphs 1 through 7 are incorporated

into this First Claim for Relief.

9.   On March 6, 2018, U.S. Patent No. 9,912,983 ("the '983 patent"), entitled

"METHOD AND SYSTEM FOR EFFICIENT COMMUNICATION," was duly and legally

issued by the United States Patent and Trademark Office. A true and correct copy of the '983

patent is attached as Exhibit 1.

10.   The inventions of the '983 patent resolve technical problems related to the use of

an apparatus for information processing, item status monitoring, and facilitating electronic

communications. For example, the '983 patent overcomes limitations in the prior art relating to

efficiently delivering multimedia information content received over a wireless communication

network. The '983 patent also overcomes limitations in the prior art relating to providing alerts

as to the status of an item in real time and over the internet or other next-generation wireless

communication network. Furthermore, the '983 patent overcomes limitations in the prior art

relating to efficiently transmitting a signal to increase household inventory of an item and

processing a purchase request for the item.

11.   The inventions allow a user to efficiently set up a system comprising a hub

capable of processing a signal corresponding to an information content for production.   The

inventions further teach a device (such as a sensor) coupled to the hub and sensing a status of an

item, such that the hub can be information of a status update and notify a user device

accordingly. The inventions further teach a hub and management center system to communicate

with each other to facilitate retrieval of a compressed information content requested from the hub

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and its production by a digital television. In this respect, the inventions of the '983 patent enable a user to create a multi-function system capable of handling a variety of household automation tasks with fewer devices than individually.

12.   The inventions also allow a user to efficiently set up a system comprising a wireless transmitter and a central controller to facilitate secure receipt and performance of action requests such as payment requests.

13.   The claims of the '983 patent recite an invention that is not merely a routine or conventional use of a wireless hub, management center, or other information processing system. The '983 patent claims specify how signals are received and transmitted over various channels to perform different functions. For instance, the invention relies on using a mapping table and a unique hub identifier to efficiently process incoming requests for multimedia content and route decompressed content to the appropriate destination.

14.   The claims of the '983 patent recite an invention that is not merely the routine or conventional use of a wireless transmitter or central controller. A stated advantage is that the '983 patent recites a secure communication channel separate from a short range wireless communication channel, thereby providing greater bandwidth and range to accommodate additional, more detailed communications related to the action request.

15.   The technology claimed in the '983 patent does not preempt all ways of using wireless hub based decoding or monitoring systems, wireless transmitters, or central controllers or information management systems, nor preempt the use of all wireless hub based decoding or monitoring systems, wireless transmitters, or central controllers or information management systems , nor preempt any other well-known or prior art technology.

16.   Accordingly, each claim of the '983 patent recites a combination of elements sufficient to ensure that the claim in practice amounts to significantly more than a patent on an ineligible concept.

17.   Plaintiff is the assignee and owner of the right, title and interest in and to the '983 patent, including the right to assert all causes of action arising under said patents and the right to any remedies for infringement of them.

18.   Upon information and belief, Defendant has and continues to directly infringe at least claims 1, 3, 22, 25, 110, and 128 of the '983 patent by making, using, selling, importing and/or providing and causing to be used the following instrumentalities, including but not limited to the Amazon Echo, Echo Plus, Echo Show, and Amazon Cloud Cam devices, along with

Amazon's Alexa voice service and associated back-end servers (the "Accused Echo Instrumentalities"); the Amazon Fire TV family of devices and associated back-end servers (the "Accused Fire TV Instrumentalities"); and the Amazon Dash Button, Dash Replenishment Service, and associated back-end servers (the "Accused Dash Instrumentalities").

19.   In particular, claim 22 of the '983 patent recites a wireless hub system configured to receive, through a wireless communication network and via an input interface, a wireless signal, decompress the signal with a decoder, and convert it for production. The wireless hub system is further configured to communicate information for managing an item status of an item in connection with a short range wireless communication regarding an updated status of the item.

20.   Claim 25 depends from claim 22 and further recites that the wireless hub is configured to communicate a video from a video camera to a user's terminal at least in part through a cellular network. The Accused Echo Instrumentalities infringe claims 22 and 25 of the

'983 patent. By way of example, the Amazon Echo/Show and Echo Plus devices each act as

wireless hub system to interact with smart home devices. See, e.g.:
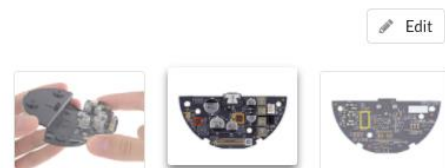
What is Echo Plus?

Echo Plus is a hands-free speaker you control with your voice, with a built-in smart home hub.
It connects to the Alexa Voice Service to play music, ask questions, make calls, provide
information, news, sports scores, weather, and more—instantly. All you have to do is ask.

(https://www.amazon.com/Echo-Plus-built-Hub-included/dp/B075RWFCHB.)

21.   The Accused Echo Instrumentalities support dual-band wi-fi for an 802.11

a/b/g/n/ac network (e.g., a wireless communication network). To support 802.11, the Accused

Echo Instrumentalities include an input interface configured to receive a wireless signal through

a wireless communication network. *See, e.g.*, https://www.amazon.com/Echo-Plus-built-Hub-

included/dp/B075RWFCHB.

22.   The Accused Echo Instrumentalities include, among other components, an audio codec (e.g., a coder/decoder) for decompression and playback of compressed audio signals. To support playback of audio, Accused Echo Instrumentalities similarly include an audio codec for decompression and playback of compressed audio signals. See e.g.:
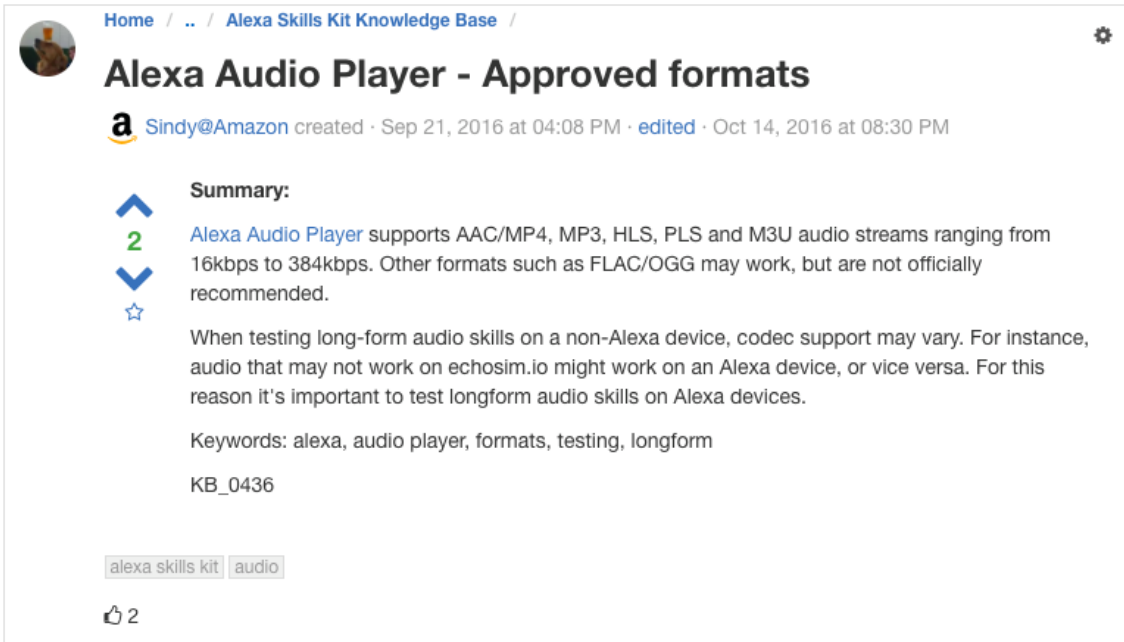

(https://www.ifixit.com/Teardown/Amazon+Echo+Teardown/33953, evidencing Texas Instruments (TLV320DAC3203); see also http://www.ti.com/lit/ds/symlink/tlv320dac3203.pdf.

23.   As evidenced by the list of supported formats, the Accused Echo Instrumentalities support encoded/compressed data; thus, the Accused Echo Instrumentalities include a decoder. See, e.g.:

(https://forums.developer.amazon.com/articles/38590/alexa-audioplayer-approved-formats.html.)

24.   To support 802.11 communication, the Accused Echo Instrumentalities support communications of the 7 layer Open Systems Interconnected (OSI) model (includes lower level layers, i.e., layer 1 communications and layer 2 communications, which support wi-fi), in addition to higher level layers (e.g., layer 3 – network layer, layer 4 – transport layer, layer 5 – session layer, layer 6 – presentation layer, and layer 7 – application layer).

25.   The Accused Echo Instrumentalities support 802.11 (wi-fi) by supporting layers 1 and 2 of the OSI model. The Accused Echo Instrumentalities also support communications via the Internet. "To stream music and other content through Alexa, your internet connection needs to be at least 512 kbs."

(https://www.amazon.com/gp/help/customer/display.html?nodeId=201973870.)

26.   To support communications via the Internet, the Accused Echo Instrumentalities support higher-level layer (e.g., layers 3-7) communications of the OSI model. Further, to

transmit data over the Internet, the Accused Echo Instrumentalities support transmission and reception of TCP/IP packets.

27.   The Accused Echo Instrumentalities include a processor and communications components to support such higher level layer (e.g., layers 3 and above) communications. The processor and the communications components that support the higher-level layer communications provide a network interface that is configured to communicate through a network communications channel (e.g., any of layers 3-7).

28.   The Accused Echo Instrumentalities support encoded/compressed data, such as MP3 or AAC formatted files. Furthermore, the Accused Echo Instrumentalities include a codec (a coder/decoder). The Accused Echo Instrumentalities (e.g., via the codec) are configured to perform a conversion of a wireless signal (e.g., a wireless signal including a compressed audio file (such as music), for example from a Spotify or Pandora computer server) to accommodate production of a corresponding information item, such as by outputting audio (e.g., playing music). For example, the Accused Echo Instrumentalities may receive a wireless signal that includes compressed data (e.g., a compressed signal, corresponding to a MP3 or AAC file), and the Accused Echo Instrumentalities decompress the compressed signal (e.g., the compressed audio data) to support the playback of uncompressed audio (i.e., a song). (*See, e.g.*, https://forums.developer.amazon.com/articles/38590/alexa-audioplayer-approved-formats.html.)

29.   The Accused Echo Instrumentalities communicate with smart devices, such as smart light switches. *See, e.g.*, https://www.amazon.com/all-new-amazon-echo-speaker-with-wifi-alexa-heather-gray/dp/B0749WVS7J.   Furthermore, the Amazon Echo Plus has built in smart hub functionality to communicate with smart devices, such as smart light bulbs. See, e.g.:

SIMPLE SETUP
WITH ECHO PLUS

Echo Plus has a built-in hub that seamlessly connects and controls ZigBee smart devices, such as light bulbs, door locks, switches, and plugs, without the need for separate hubs or apps. With simple setup, connecting Echo Plus to the devices below is easy. Just say "Alexa, discover my devices" and Echo Plus will discover and set up your devices. Like other Echo devices, Echo Plus can connect to hundreds of Wi-Fi and Bluetooth smart home devices with the Alexa app, such as lights, outlets, TVs, thermostats, cameras, and more. Shop all smart home products.

(See https://www.amazon.com/b?ie=UTF8&node=17238426011.)

Amazon Device Support › Alexa Support › Smart Home ›

Connect a Smart Home Device to Alexa

After you set up a compatible smart home device, enable the skill and then ask Alexa to discover your devices.

Important: Before you enable a smart home skill, please read Safety Information for Using Smart Home Devices with Alexa.
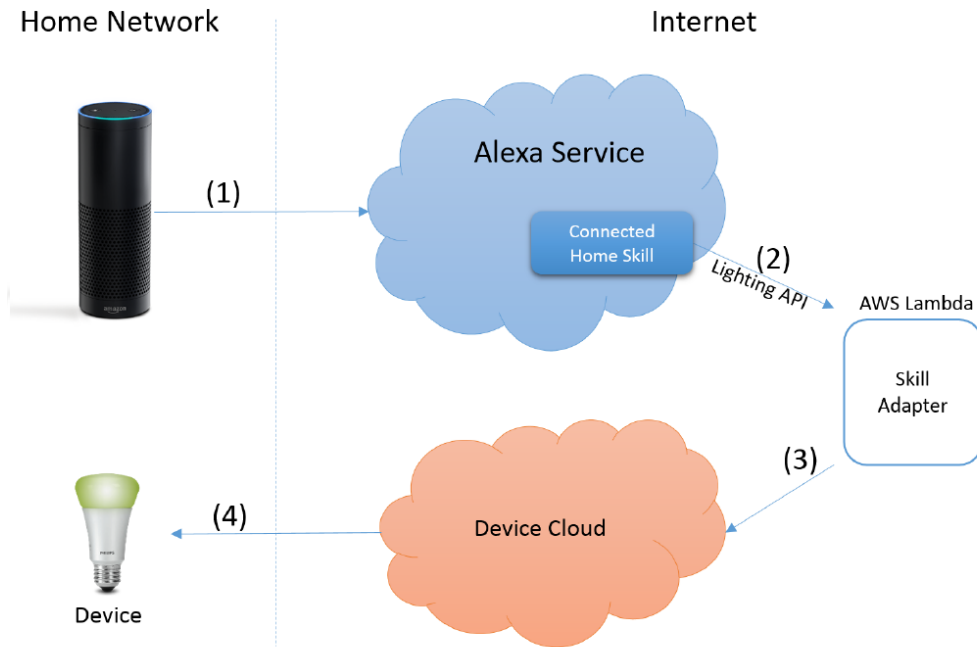
For smart home devices that connect to Echo Plus using a simple set up, go to Supported Smart Home Devices for Echo Plus.

Before you begin:

- Check your smart home device is compatible with Alexa.
- Complete setup for your smart home device, using the manufacturer's companion app or website.
- Connect the device to the same Wi-Fi network as your Alexa devices.
- Download the Alexa app on your mobile device, or use https://alexa.amazon.com.
- Download and install the latest software updates for your devices.

Note: To learn how to connect a smart home camera to Alexa, go to Use Smart Home Cameras with Alexa.

(https://www.amazon.com/gp/help/customer/display.html?nodeId=201749240.)

(https://developer.amazon.com/public/binaries/content/assets/html/alexa-lighting-api.html.)

30.   As one particular example of controlling smart devices, the Amazon Echo can

control a Philips Hue smart bulb that is connected to a Philips Hue hub. (*See*

https://www2.meethue.com/en-us/friends-of-hue/amazon-alexa.) The Amazon Echo Plus can

control a Philips Hue smart bulb without the need for an intermediate hub. *See id.* The Philips

Hue smart bulb communicates with either the Philips Hue hub (if required) or with the Amazon

Echo Plus using Zigbee, a short range wireless communication protocol. *See, e.g.*,

https://www2.meethue.com/en-us/p/hue-bridge/046677458478. *See also, e.g.*:

EchoPlus ZigBee specs and device support 🔗

Currently, EchoPlus supports ZigBee Home Automation 1.2 (HA1.2) for device types including:

- In-wall switches
- Plugs and outlets
- Lights
- Locks

(https://developer.amazon.com/docs/smarthome/echo-plus-zigbee-support.html.)

31.   The Phillips Hue smart bulb is configured to communicate (e.g., receive commands and transmit information) via a Zigbee communication. The Accused Echo Instrumentalities communicate, via the wi-fi network, information (e.g., about a status of the light, such as the Philips Hue smart bulb) to a user device (e.g., a phone) that executes the Alexa application (Alexa is a cloud-based voice control service executed by the Amazon Echo and Echo Plus). As illustrated below, the Phillips Hue smart bulb communicates information regarding a status of the Philips Hue smart bulb to the Amazon system (for transmission to, and display at, a phone or other user device). The user device executing the Alexa application receives the information from the Accused Echo Instrumentalities and displays a status of the light based on the information.
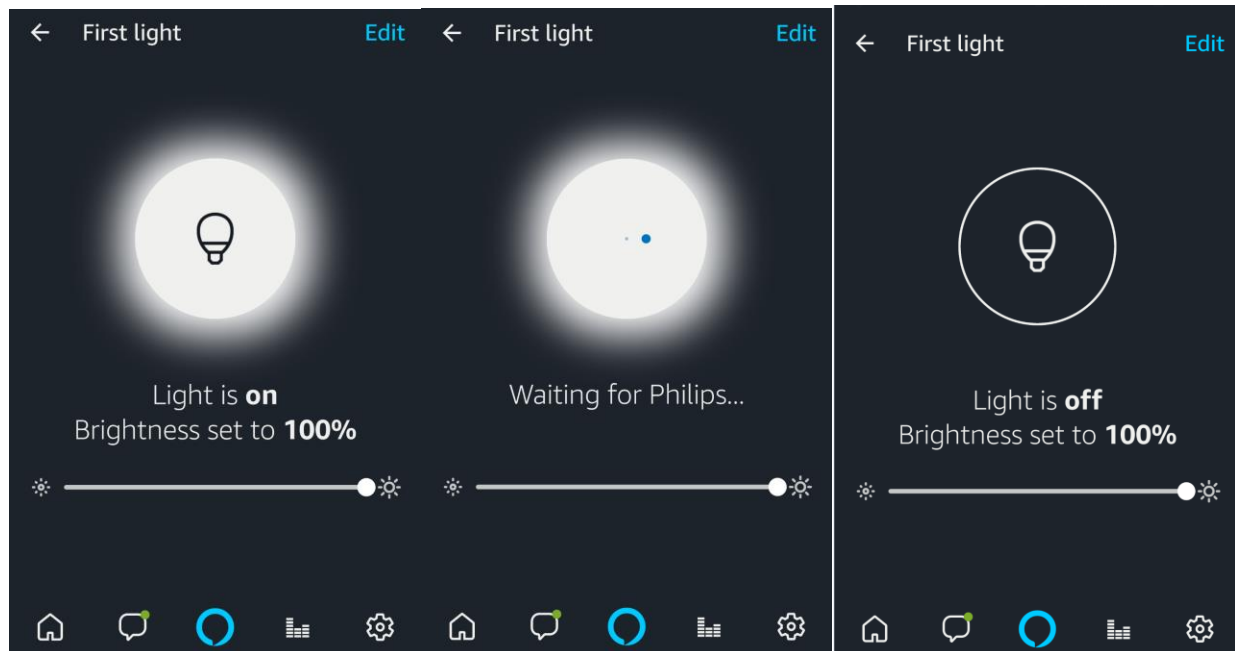
32.   The network communication channel, such as via an 802.11 a/b/g/n (2.4 and 5 GHz) networks is distinct from the Zigbee communication.

33.   The Accused Echo Instrumentalities further include a video camera (Amazon Cloud Cam) bundled with the Echo Show to capture video and transmit it through the Echo Show to a user's terminal at least in part through a cellular network. The Cloud Cam and Echo Show devices may be purchased as a bundle. The Cloud Cam works with Alexa and can be used in conjunction with the Echo Show to view the live video feed on the Echo Show and enjoy 24/7 monitoring of the home. Furthermore, the Cloud Cam can be configured to notify a user when it detects any video activity. See, e.g.:

WHAT IS

AMAZON CLOUD CAM?

Catch every moment

Amazon Cloud Cam features everything you need to help keep your home safe. When Cloud Cam sees any activity you'll receive a notification, allowing you to keep tabs on your home from anywhere. Our always-ready motion detection feature helps to capture activities right from the start.

Stay connected 24/7

Monitor your home in 1080p Full HD, and catch activity as it happens. Check in on your home anytime from the Cloud Cam mobile app or at cloudcam.amazon.com. View live video streams, replay motion alert clips, and know when Cloud Cam detects activity. Watch, download, and share the last 24 hours of clips for free.

See clearly in the dark

Cloud Cam features eight infrared LEDs and Cloud Cam's computer vision algorithms automatically activate night vision when lighting is dim. See the camera's entire field of view at night—not just a spotlight. Turn on/off night vision LEDs in the Cloud Cam App.

Two-way audio

Cloud Cam's built-in mic and speaker let you stay in touch with your household. Check in with the kids after school, tell your dog to stop barking, or say hello through the Cloud Cam App.

Intelligent alerts

Cloud Cam's motion detection and computer vision technology provides customizable notifications so you only get the alerts that matter. Get intelligent alerts like person detection with a Cloud Cam subscription. Learn more.

Start your 30-day free trial

Upgrade to a Cloud Cam subscription for advanced monitoring features like Person Detection, which lets you know when Cloud Cam sees a person. Or Zones, which lets you select areas Cloud Cam should ignore, like a fish tank or a tree outside a window. Cloud Cam subscriptions include up to 30 days of video history and support for up to 10 cameras. Change plans or cancel anytime. Learn more.

(https://www.amazon.com/Echo-Show-Amazon-Indoor-Security/dp/B076C9DLGS.)

Roll over image to zoom in

(https://www.amazon.com/Echo-Show-Amazon-Indoor-Security/dp/B076C9DLGS.)

34.   Claim 1 of the '983 patent recites an apparatus for processing a multimedia signal to accommodate real time production of a corresponding multimedia content on a high definition digital television, comprising an input interface to receive the multimedia signal through a wireless communication network, a buffer to accommodate adequate buffering and processing rate, a decoder for decompressing a received compressed signal, an encoder for encoding the decompressed signal to produce an encoded high definition digital video signal, and a high definition digital output interface for transmitting the encoded high definition digital video signal in real time to a high definition digital television.

35.   Claim 3 of the '983 patent depends from claim 1 and further recites that the apparatus is configured to transmit the encoded signal to the high definition digital television through a high definition multimedia interface (HDMI) and cable.

36.   The Accused Fire TV Instrumentalities infringe claims 1 and 3 of the '983 patent. The Amazon Fire TV is configured to process multimedia content to accommodate production of

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the multimedia content on a high definition television. See, e.g.:

(https://www.amazon.com/all-new-amazon-fire-tv-4k-uhd-streaming-media-player/dp/B01N32NCPM/.)

37.   The Amazon Fire TV supports dual-band wi-fi for an 802.11 a/b/g/n/ac network (e.g., a wireless communication network). To support 802.11 communications, the Amazon Fire TV includes an input interface to receive wireless signals. (*See* https://www.amazon.com/all-new-amazon-fire-tv-4k-uhd-streaming-media-player/dp/B01N32NCPM.)

38.   The Amazon Fire TV is configured to stream multimedia content from sources like Netflix, YouTube, and/or Amazon Prime, as examples. The multimedia content is received by an internet connection through an 802.11 Wi-Fi network (e.g., a wireless communication network). (*See, e.g.*, https://www.amazon.com/all-new-amazon-fire-tv-4k-uhd-streaming-media-player/dp/B01N32NCPM.)

39.   Upon information and belief, to support the streaming and playing of multimedia content, the Amazon Fire TV includes a data buffer. Upon information and belief, the data buffer is configured to accommodate an adequate buffering and processing rate for processing in support of production of the multimedia content at the high definition digital television (e.g., 4K Ultra HD multimedia content may be streamed at 60 frames per second). *See, e.g.*:

(https://www.amazon.com/all-new-amazon-fire-tv-4k-uhd-streaming-media-

player/dp/B01N32NCPM.)

40.   Amazon's Developer FAQ indicates that the Amazon Fire TV uses media

resources that include decoders. *See, e.g.*:

(https://developer.amazon.com/docs/fire-tv/faq-general.html.)

41.   Furthermore, as evidenced by the list of supported formats below, the high

definition video streamed by the Amazon Fire TV includes compressed multimedia signal (e.g.,

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H.264 or H.265). To decompress the compressed high definition video signal for output via the

HDMI interface, the Amazon Fire TV must perform a conversion on the compressed high

definition video signal by converting the compressed high definition video signal to decoded

high definition video signal (e.g., decoded H.264 or H.265 data). The Amazon Fire TV is

configured to transmit the converted signals via a high definition multimedia interface (HDMI).

To support transmission of converted signal via HDMI (and based on receiving signal in a

compressed format, such as H.264 or H.265), the Amazon Fire TV includes a decoder (to

convert from the compressed signal (e.g., H.264 or H.265) to a decoded signal. *See, e.g.*:

Media Specifications

Fire TV (Gen 3)

Type	Codec	MIME type	Details
Video	H.265 (HEVC) (High Efficiency Video Coding)	video/hevc	Hardware accelerated up to 3840x2160p (4K) @ 60fps, 35 Mbps, Main 10 Profile Level 5.0, Color space 8-bit and 10-bit input with HDR10 support in rendering pipelines. *more_info_4k
	H.264	video/avc	Hardware accelerated up to 3840x2160p @ 30fps or 1080p @ 60fps, 20 Mbps, High Profile up to Level 4.1
	H.263	video/3gpp	Not supported
	VP8	video/webm	Not supported
	VP9	video/webm	Hardware accelerated up to 4K@60fps (including skip frames), Profile 2 with HDR10 support in rendering pipelines
	MPEG-2	video/mp2t	
	MPEG-4	video/mp4v-es	Not supported

(https://developer.amazon.com/docs/fire-tv/device-specifications.html.)

      42.   The Amazon Fire TV includes an HDMI interface (e.g., a high definition digital

output interface) that is connectable to an HDMI input connector of a high definition digital

television. Thus, the Amazon Fire TV outputs multimedia signals in HDMI format. The

Amazon Fire TV receives compressed video signals via a wi-fi network, as explained above.

The received compressed signal (such as H.264 or H.265) is decoded to generate decompressed

signal, and thereafter, the decompressed signal is converted (via an encoder) to an encoded signal

for transmission through the HDMI. The output of the Amazon Fire TV is decompressed high

definition video (and audio). For example, 4K Ultra HD (e.g., decompressed video) can be

streamed at up to 60 frames per second (fps). See, e.g.:

(https://www.amazon.com/all-new-amazon-fire-tv-4k-uhd-streaming-media-

player/dp/B01N32NCPM.)

43.   The Amazon Fire TV includes a cable that connects to an HDMI input connector

of a high definition television. Thus, the HDMI is configured to connect to the cable to transmit

the encoded signal (e.g., the decompressed multimedia signal encoded for HDMI output). See,

e.g., https://www.amazon.com/all-new-amazon-fire-tv-4k-uhd-streaming-media-

player/dp/B01N32NCPM.

44.   Claim 110 of the '983 patent recites a wireless device configured to transmit,

through a wireless channel, a signal in connection with an initiation of a replenishment of an

inventory of an item, in response to an indication of an updated status of the item, and where the

transmitted signal corresponds to a unique identifier of the wireless device and information about

the inventory of the item, including a requirement of the item, is stored in a database. Claim 110

further recites that the transmitted information is recognized in connection with a successful

transmission of the signal, that shipping information is communicated through a network

communication channel, the item is associated with the wireless device, and merchant

information relevant to the replenishment of the item is sent to a user of the item.

45.   Claim 116 depends from claim 110 and further recites that the wireless

transmission channel is through a wireless local area network.

46.   Claim 128 of the '983 patent recites a central controller configured to store a

unique identifier associated with an item status sensing device corresponding to an item, receive

information regarding a signal transmitted from the item status sensing device through a wireless

channel in connection with an initiation of the replenishment of an item, store information about

the inventory of the item and a requirement of the item, identify the item using a unique

identifier of the item status sensing device, and communicate merchant information and shipping

information relevant to the replenishment of the item.

47.   Claim 130 depends from claim 128 and further recites that the signal is

transmitted in response to an automatic detection, by a sensor, of the updated status of the item.

48.   Claim 133 depends from claim 128 and further recites that the central controller is configured to send information regarding the updated status of the item to a cellular phone.

49.   Claim 134 depends from claim 128 and further recites that the wireless transmission channel is through a wireless local area network.

50.   The Accused Dash Instrumentalities infringe claims 110, 116, 128, 130, 133, and 134 of the '983 patent. By way of example, the Amazon Dash Button is a Wi-Fi capable wireless device that facilitates communication of information including, but not limited to, an updated condition of a merchandise (e.g., a product sold by Amazon), a user identification, a product identification, a purchase request, and/or the item status signal etc. See, e.g.:

Amazon Dash Button

Amazon Dash Button is a Wi-Fi connected device that ensures you never run out of your essential household, drink, grocery, health care, personal care, baby and pet products ever again.

When you are running low on your favorite products at home, simply press Dash Button and relax while your order is fulfilled and delivered. You can be notified of your order confirmation through the Amazon App. Dash Button lets you order products immediately without needing to be reminded and allows you to save time by skipping the search process for your exact product. Our Dash Button Order Protection feature also doesn't allow a new order to be placed until the prior order ships unless you allow multiple orders. Amazon Dash Button is a stress-free device built to make your life easier.

In order to fully utilize a Dash Button, you must be an Amazon Prime member.

Amazon Dash Button allows you to reorder from leading brands – including Bounty, Tide, Cottonelle, Glad, Clorox, Gatorade, Maxwell House, smartwater, Izze, Kraft Mac & Cheese, Larabar, Olay, Gillette, L'Oreal, Gerber, Huggies, Wellness, Finish, Dixie, Optimum Nutrition, Greenies, Hefty, Orbit, Ziploc, Depend, Ice Breakers, Digestive Advantage and Mrs. Meyers.

> "**Amazon Dash Button is a Wi-Fi connected device** that ensures you never run out of your essential household, drink, grocery, healthcare, personal care, baby and pet products ever again. **When you are running low on your favorite products at home, simply press Dash Button and relax while your order is fulfilled and delivered.** You can be notified of you order confirmation through the Amazon App. Dash Button lets you order products immediately without needing to be reminded and allows you to save time by skipping the search process for your exact product." Emphasis added.

(*See* https://www.amazon.com/Dash-Buttons/b?ie=UTF8&node=10667898011.)

WHAT YOU NEED. WHEN YOU NEED IT.

WHAT IS DASH BUTTON?

Amazon Dash Button is a Wi-Fi connected device that reorders your favorite product with the press of a button. Each Dash Button is paired with a product of your choice, which is selected during the set-up process. When you're running low, simply press Dash Button —ensuring you never run out of your essentials again.

SIMPLE TO SET UP AND USE

Dash Button is set up and managed through the Amazon App on your Android or iOS smartphone, and works in any location with a Wi-Fi connection. Once set-up is complete, a notification (if enabled) is sent to your smartphone every time an order is placed. Click here to make sure you have the latest version of the Amazon App.

ORDER PROTECTION

With this setting, Dash Button responds only to your first press until your order is delivered—regardless of how many times Dash Button is pressed. And you will receive an order notification (if enabled) for every order placed, allowing you to cancel an order before it ships.

$4.99 CREDIT AFTER FIRST PRESS

Buy Dash Button for $4.99, and receive a credit for $4.99 after your first press. See terms and conditions

EXCLUSIVELY FOR PRIME MEMBERS

Dash Button is available for Prime members only. Click here to learn more about Prime.

"**Amazon Dash Button is a Wi-Fi connected device** that reorders your favorite product with the press of a button. **Each Dash Button is paired with a product of your choice, which is selected during the set-up process. When you are running low, <u>simply press Dash Button</u>** – ensuring you never run out of your essentials again."

(*See* https://www.amazon.com/s/ref=nb_sb_noss_2?url=search-alias%3Daps&field-keywords=amazon+dash (emphasis added.))

DASH BUTTON DETAILS

1. ORDER BUTTON

This is where you'll place an order.

2. REMOVABLE HOOK

Dash Button comes with a reusable adhesive and a removable hook to hang, stick, or place Dash Button right where you need it.

3. ORDER STATUS INDICATOR

Once Dash Button is pressed, this indicator will turn green when an order is successfully placed or red if the order was unsuccessful. All order statuses can be checked through the Amazon App.

(*See* https://www.amazon.com/Dash-Buttons/b?ie=UTF8&node=10667898011.)
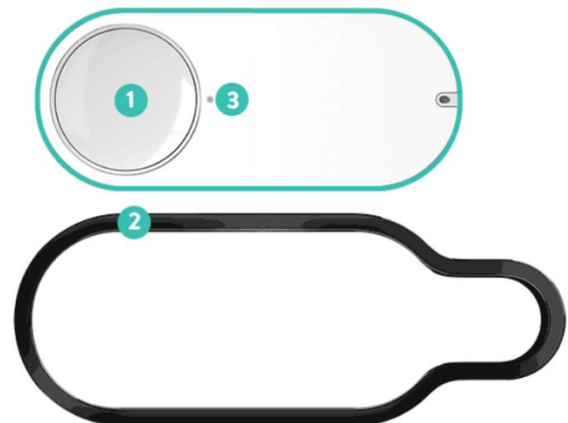
51. By way of example, the following figures are from a teardown of the Amazon

Dash Button, model JK76PL. (See https://mpetroff.net/2015/05/amazon-dash-button-teardown.)

52.   The following figures are from a teardown of the Amazon Dash Button, model

JK29LP. (*See* https://mpetroff.net/2016/07/new-amazon-dash-button-teardown-jk29lp/.)

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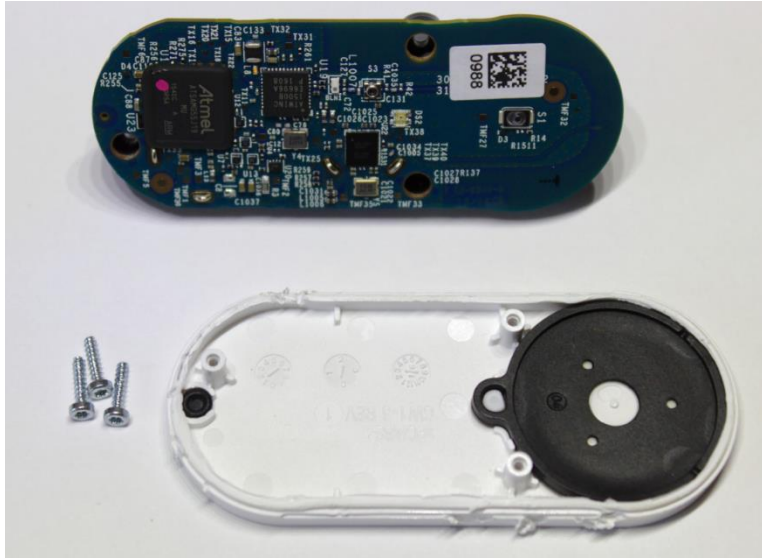
53.   Similarly, the Amazon Dash Replenishment product comprises a Wi-Fi capable wireless device that facilitates communication of information including, but not limited to, an updated condition of a merchandise (e.g., a product sold by Amazon), a user identification, a product identification, a purchase request, and/or the item status signal etc. See, e.g.:

How does it work?

Your customers link their Amazon account to your experience, and select the products they want to automatically reorder. Your device measures and tracks usage and when the supplies are running low your device places an order using DRS and we ship the product to the customer on your behalf. Dash Replenishment Service uses Login with Amazon (LWA), Amazon Simple Notification Service, and RESTful API endpoints to allow your device or cloud to integrate with a few as 10 lines of code!

For example, a connected automatic pet food dispenser with built-in sensors can measure the amount of pet food remaining in its container and place an order before running out.

Learn more

(https://developer.amazon.com/dash-replenishment-service.)

How do I build a DRS device?

Internet enabled

If your device can connect to the internet; it can use Amazon Dash Replenishment. You have the flexibility of having your device connect through your cloud or directly. Your device should be configured to regularly update your app or cloud to avoid missing that "Ran out of it" moment for your customers.

Measure product consumption

Your device can measure and reorder anything. Including products that your device might use or dispense like coffee pods or dog food. Your device can also reorder products that it counts on for operation like batteries for a connected smoke detector.

Product usage

DRS works with any sensor or tracking mechanism, but the best experience for your customers is one that tracks customer usage directly. For example, a washing machine that tracks how much detergent is being used and can automatically reorder when supplies are low.

(https://developer.amazon.com/dash-replenishment-service/getting-started.)

54.   The Dash Button comprises a transmitter configured to transmit, through a wireless transmission channel, a signal in connection with an initiation of a replenishment of an inventory of an item, the signal being transmitted through the wireless transmission channel in response to an indication of an updated status of the item, the signal comprising information corresponding to a unique identifier of the wireless device, information about the inventory of the item being stored in a database, a requirement of the item being included in the information about the inventory of the item.

55.   At least one generation of the Amazon Dash Button includes a Broadcom BCM43362 Wi-Fi module. This wireless radio chip allows the device to connect to 802.11 b/g/n wireless transmission channel. (*See* https://mpetroff.net/2015/05/amazon-dash-button-teardown/.) Furthermore, at least one additional generation of the Amazon Dash Button includes an Amtel ATWINC1500B Wireless Chip. This wireless radio chip allows the device to connect to 802.11 b/g/n wireless transmission channel. (*See* https://mpetroff.net/2016/07/new-amazon-dash-button-teardown-jk29lp/.) See, for example, the following figures from a teardown of the Amazon Dash Button, model JK76PL. (https://mpetroff.net/2015/05/amazon-dash-button-teardown.)
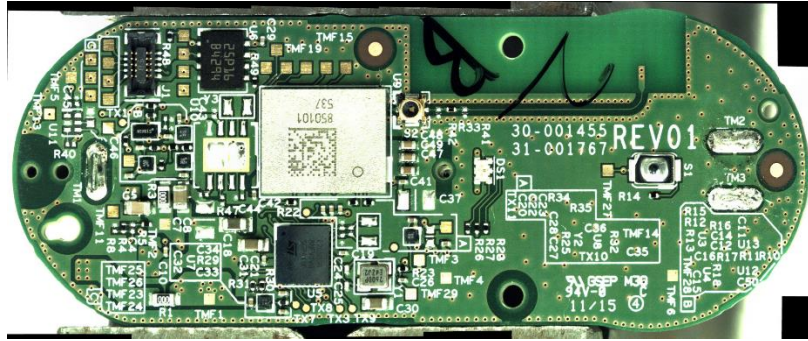
Teardown picture showing Broadcom BCM43362 Wi-Fi module. *See* https://mpetroff.net/wp-content/uploads/2015/05/dash09-front.jpg
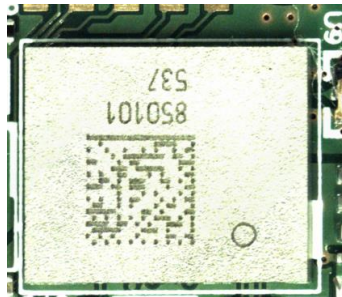
Close up of Broadcom BCM43362 Wi-Fi module labeled 'U9' included within the Amazon Dash Button (the wireless transmitter). *See* https://mpetroff.net/wp-content/uploads/2015/05/dash09-front.jpg

For example, FCC ID is an ID assigned by the FCC to identify wireless products. As labeled on the external housing of the Amazon Dash Button, the FCC ID of Model JK76PL is 2ACBE-0610.

1.2 Product Feature of Equipment Under Test

Product Feature	
Equipment	Wireless Device
Model Name	JK76PL
FCC ID	2ACBE-0610
EUT supports Radios application	WLAN 11b/g/n HT20
EUT Stage	Production Unit

Remark: The above EUT's information was declared by manufacturer. Please refer to the specifications or user's manual for more detailed description.

1.3 Product Specification subjective to this standard

Product Specification subjective to this standard	
Tx/Rx Channel Frequency Range	802.11b/g/n : 2412 MHz ~ 2462 MHz
Maximum (Peak) Output Power to Antenna	802.11b : 22.38 dBm (0.1730 W) 802.11g : 24.27 dBm (0.2673 W) 802.11n HT20 : 24.18 dBm (0.2618 W)
Antenna Type	802.11b/g/n : Fixed Internal Antenna type with gain 0.93 dBi
Type of Modulation	802.11b : DSSS (DBPSK / DQPSK / CCK) 802.11g/n : OFDM (BPSK / QPSK / 16QAM / 64QAM)

(*See* https://fccid.io/pdf.php?id=2560779) (showing the device is 802.11b/g/n compatible.)

See, for example, the following figures from a teardown of the Amazon Dash Button, model JK29LP. (https://mpetroff.net/2016/07/new-amazon-dash-button-teardown-jk29lp/.)

Teardown picture showing Amtel ATWINC1500B Wi-Fi module. https://mpetroff.net/2016/07/new-amazon-dash-button-teardown-jk29lp/#rf1-2185

Amtel ATWINC1500B Wi-Fi module labeled 'U19' included within the Amazon Dash Button (the wireless transmitter). *See* https://mpetroff.net/2016/07/new-amazon-dash-button-teardown-jk29lp/#rf1-2185

For example, FCC ID is an ID assigned by the FCC to identify wireless products. As labeled on the external housing of the Amazon Dash Button, the FCC ID of model JK29LP is 2AETK-1013.

1.2 Product Feature of Equipment Under Test

Product Feature	
Equipment	Wireless Device
Model Name	JK29LP
FCC ID	2AETK-1013
EUT supports Radios application	WLAN 11b/g/n HT20 Bluetooth v4.0 LE

Remark: The above EUT's information was declared by manufacturer. Please refer to the specifications or user's manual for more detailed description.

1.3 Product Specification subjective to this standard

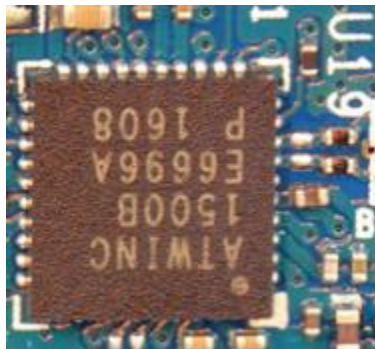| Product Specification subjective to this standard	
Tx/Rx Channel Frequency Range	2412 MHz ~ 2462 MHz
Maximum (Peak) Output Power to Antenna	802.11b : 20.65 dBm (0.1161 W) 802.11g : 23.53 dBm (0.2254 W) 802.11n HT20 : 23.53 dBm (0.2254 W)
99% Occupied Bandwidth	802.11b : 14.35MHz 802.11g : 18.45MHz 802.11n HT20 : 19.35MHz
Antenna Type	Fixed Internal Antenna with gain 1.17 dBi
Type of Modulation	802.11b : DSSS (DBPSK / DQPSK / CCK) 802.11g/n : OFDM (BPSK / QPSK / 16QAM / 64QAM)

(*See* https://apps.fcc.gov/eas/GetApplicationAttachment.html?id=2944085)
(showing the device is 802.11b/g/n compatible.)

For example, the entire circuit board of the Amazon Dash Button comprises a Broadcom (model JK76PL) or Amtel (model JK29LP) Wi-Fi module. Associated unique identifiers include, but are not necessarily limited to, the following:

(a) The wireless device's media access control address (MAC address);
(b) An identifier unique to the customer's Amazon.com account assigned to the wireless device for a particular merchandise and provided to the wireless radio chip for transmission;
(c) The networks SSID and password;
(d) A Unique Device Identifier (UDID) specific to the device used to set up the wireless device;
(e) An identifier unique among all Amazon.com customer accounts assigned to the Dash Button for a particular merchandise and provided to the wireless radio chip at least for transmission;
(f) An identifier unique for particular merchandise provided to the wireless device to transmit purchase orders;
(g) A serial number associated with the specific wireless device e.g., a Device Serial Number or DSN.

56.   The wireless radio chip contains information of a unique identifier corresponding

to the wireless device. For example, each Amazon Dash Button possesses its own Device Serial

Number, or DSN. The DSN is visible on the external housing of the Amazon Dash Button. The

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Device Serial Number is a non-limiting example of a unique identifier corresponding to the

wireless device. The wireless radio chip contains information of a unique identifier

corresponding to the wireless device, such as the DSN. The wireless device transmits a payload

using the wireless chip. This payload includes, but is not limited to the Device Serial Number, in

addition to the measured battery voltage and the click type, as shown in the figure below.

What's in the payload sent from the device when you press it?

The payload contains the device serial number, the measured battery voltage, and a click type.

The following JSON template shows what is sent in the payload.

```
{
          "serialNumber": "GXXXXXXXXXXXXXXXXXX",
          "batteryVoltage": "mV",
          "clickType": "SINGLE | DOUBLE | LONG"
}
```

Discussion of Amazon IoT button, which is similar to the Dash Button. The JSON template contains an alphanumeric serial number called "serialNumber" which is 19 characters long, beginning with 'G'. This serial number is the Device Serial Number, which corresponds to the DSN on the outside of the Amazon Dash Button housing. (*See* http://aws.amazon.com/iot/button/.)

Model JK76PL showing the Device Serial Number printed on the external housing. The DSN corresponds to the Serial Number used in the JSON template. (https://mpetroff.net/2015/05/amazon-dash-button-teardown/.)

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Model JK29LP showing the Device Serial Number printed on the external housing.
(https://mpetroff.net/2016/07/new-amazon-dash-button-teardown-jk29lp/#rf1-2185.)

57.   Similarly, the Amazon Dash Replenishment product comprises a wireless radio

chip containing information of a unique identifier corresponding to the wireless device. See,

e.g.:

Amazon Standard Identification Number

ASIN is an identifier that Amazon gives to every single product on
amazon.com. It is an alphanumeric string and that can be found in the
"Product Details" section on any product detail page. Example Product Detail
Page ››

It is important that any product you want your device to reorder meets two
criteria:
1. The item is available on amazon.com
2. The item is "Shipped and Sold" by Amazon.com.

You can discover if a product is shipped and sold by Amazon.com by looking
near the "In-stock" indicator on the detail page.

(https://developer.amazon.com/dash-replenishment-service/getting-started.)

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58.   When a particular merchandise associated with the Amazon Dash Button needs to be reordered, the Amazon Dash Button customer presses the Dash Button's button. In response, the Amazon Dash Button transmits an item status signal to provide Amazon with information regarding an updated condition of a merchandise. Upon receipt of the item status signal, Amazon learns their customer does not have enough desired quantity of the merchandise associated with the Dash button and therefore additional merchandise should be shipped to the customer. In this manner, the item status signal transmitted by the Amazon Dash Button provides information regarding an updated condition of a merchandise (e.g., inventory levels are lower than desired, please ship more product).

59.   In response to the Amazon Dash Button's button being pushed, a wireless communication channel is established in a local wireless communication network (*e.g.*, a Wi-Fi network to which the Dash Button has been configured to connect). The Dash Button first wakes up and connects to the local wireless communication network. The Dash Button then connects to Amazon servers through the wireless transmission channel in the local wireless communication network and the local wireless communication network's connection to the Internet. Finally, the Dash Button transmits an item status signal, which includes but is not necessarily limited to, information for the Amazon Dash Button's unique identifier (e.g., Device Serial Number) in association with an indication that the customer wishes to order additional merchandise according to the preferences previously configured during the setup process.

60.   The wireless transmission channel includes, but is not necessarily limited to, the Wi-Fi transmission channel of the local wireless network, and/or an end-to-end connection between the Dash Button and Amazon.com servers (e.g., at least one generation of Amazon Dash Buttons are configured to connect to parker-gateway-na.amazon.com).

(*See*
https://github.com/dekuNukem/Amazon_Dash_Button/blob/master/debug_output/successful_tra
nsaction.txt.)

61.   The wireless transmission channel is established for transmission of the item

status signal by the Dash Button (wireless device) to Amazon servers. See, e.g.:

```
...

WIFI_Thread
Error 4294967295 in wiced_tls_init_root_ca_certificates
Waiting for net needed, no clear
*Joining : DekuNukem
Successfully joined : DekuNukem
Obtaining IPv4 address via DHCP
NX_DHCP_STATE_SELECTING: Waiting for a response from any DHCP server
NX_DHCP_STATE_REQUESTING: DHCP Server identified, IP address request sent
NX_4 network ready IP: 192.168.191.125
se established
IPv4 network ready IP: 192.168.191.125
NETWORK UP took 3222ms
Network established time: 3224ms
Resolving IP address of parker-gateway-na.amazon.com
Server is at 176.32.103.77
while loop in TRANS_Thread
Transaction 0 is ready ... status: f0
shTransaction ID: 1


...
```

Showing connection to the wireless local area network (refer specifically to
"Successfully joined: DukeNukem"; the wireless network the tested Dash
Button is configured to connect to is DukeNukem).
See
https://github.com/dekuNukem/Amazon_Dash_Button/blob/master/debug_outp
ut/successful_transaction.txt.

```
...

HTTP send transaction attempt 1
wiced_tcp_connect OK
GenerateHeader: Parm1 = /2/b , Parm2 = ä0
Tx 1.22
Tx 2.1
Tx 3.14
Tx 4.0
HTTP Status: 200
Setting time in HTTP_SendTransFromFile: RIO_SetRTCDateTime: 0x55551cbd = 1431641277 = Thu
May 14 22:07:57 2015


gUpdateFirmwareFlag = 0
SendTransaction succeeded
endof TRANS_Thread loop
LogMsgSendString: sending log msg (RSSI=-16dBm(5TBB), SNR=0, cspec=11019,
sec=400004,RTT=2489ms)
LogMsgSendString: disconnecting rx_result=2, total_length=107
```

```
iTOC_Pending_Rd = 1, iTOC_Next_Wr = 1Failed transactions = 0
fgh: [TRANS] calling LogMsgSendStatus
LogMsgSendString: sending log msg ( S=0b000000 W=02020000 A=03030101 P=01010000 F=01000000
D=04000000 C=00000000 T=00000000)
LogMsgSendString: disconnecting rx_result=2, total_length=107
Transaction and logging complete...
shutdown called
Failed transactions = 0
iTOC_Pending_Rd = 1, iTOC_Next_Wr = 1Failed transactions = 0
Turning off power via latch switch
```

Showing connection to Amazon servers (refer specifically to "wiced_tcp_connect OK" and "HTTP Status: 200). *See* https://github.com/dekuNukem/Amazon_Dash_Button/blob/master/debug_outp ut/successful_transaction.txt.

62.   Similarly, the Amazon Dash Replenishment product comprises instructions for transmitting, though a wireless transmission channel, an item status signal to provide information regarding an updated condition of a merchandise. The Amazon Dash Replenishment product is capable of determining an updated condition of a merchandise (e.g., printer toner is low) and will in response to that determination transmit, though a wireless transmission channel, an item status signal to provide information regarding an updated condition (e.g., eventually resulting in the placement of an replenishment purchase order).

How do I build a DRS device?

Internet enabled
If your device can connect to the internet; it can use Amazon Dash Replenishment. You have the flexibility of having your device connect through your cloud or directly. Your device should be configured to regularly update your app or cloud to avoid missing that "Ran out of it" moment for your customers.

Measure product consumption
Your device can measure and reorder anything. Including products that your device might use or dispense like coffee pods or dog food. Your device can also reorder products that it counts on for operation like batteries for a connected smoke detector.

Product usage
DRS works with any sensor or tracking mechanism, but the best experience for your customers is one that tracks customer usage directly. For example, a washing machine that tracks how much detergent is being used and can automatically reorder when supplies are low.

"Internet enabled", showing wireless logo. "Your device can measure and reorder anything. Including products that your device might use or dispense like coffee pods or dog food. Your device can also reorder products that it counts on for operation like batteries for a connected smoke detector." And "DRS works with any sensor or tracking mechanism, but the best experience for your customers is one that tracks customer usage directly. For example, a washing machine that tracks how much detergent is being used and can automatically

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reorder when supplies are low. *See* https://developer.amazon.com/dash-replenishment-service/getting-started.

Amazon Device Support › Dash Button Device Help › Amazon Dash Replenishment ›

Set Up Amazon Dash Replenishment

Use your device's companion app or website to set up Amazon Dash Replenishment.

1. **Connect your device to your network using Wi-Fi or Bluetooth.**
   Configure your device to connect to your network using Wi-Fi or Bluetooth through the device companion app or website. For more information on how to connect your device to your network, contact your product manufacturer: Manufacturer Contact Information for Devices with Amazon Dash Replenishment.
2. **Find Dash Replenishment settings in the companion app or website.**
   If you can't find the Dash Replenishment settings, please refer to your manufacturer's help pages.
3. **Select Dash Replenishment and login with your Amazon account.**
   Enter the email address and password associated with your Amazon account, and then tap **Sign in**.
4. **Select the product you would like to reorder.**
   Some devices let you select multiple products. Depending on the product, you may have options like brand, color, size, flavor, or amount.
5. **Confirm your 1-Click shipping and payment information.**
   Dash Replenishment uses this information when you place an order. After you confirm the shipping and payment information, select **Complete setup**.

Tip: To modify your default 1-Click shipping and payment information, visit Manage Addresses and 1-Click Settings. To learn more, go to Update Your Mobile 1-Click.

"Configure your device to connect to your network using Wi-Fi or Bluetooth through the device companion app or website. For more information on how to connect your device to your network, contact your product manufacturer: Manufacturer Contact Information for Devices with Amazon Dash Replenishment."
(https://www.amazon.com/gp/help/customer/display.html?nodeId=201969390.)

63.   Upon Information and belief, the purchase requirement is any or all information required for the purchase. This includes, most notably, the selection of what item to order from the brand labeled on the Dash Button. Meaning if the Dash Button is labeled 'Tide' the user selects a Tide item to be associated with the Dash Button. The user also confirms or enters a

shipping address, shipping method, and payment method needed for the processing of the

purchase request. See, e.g.:
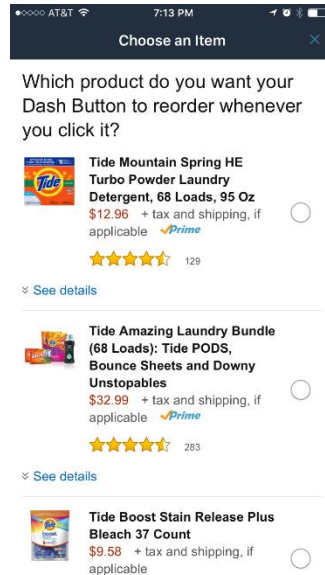
The screenshot above from the "Amazon" App shows that the user selects which merchandise to be assigned to the Amazon Dash Button. Currently, the user is limited to the brand (*i.e.* Tide, Bounty, etc.) labeled on the specific Amazon Dash Button. This is a one example of a purchase requirement.
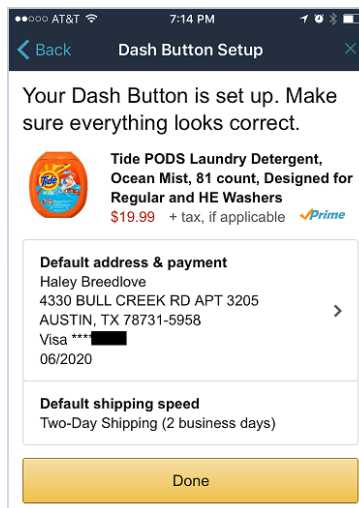
The screenshot above from the "Amazon" App of the Amazon Dash Button set up process confirming that the user account information is correct. Here the user can choose/enter payment method, shipping method, and shipping address to be associated with the wireless device. The user account is therefore associated with the wireless device.

64.   On information and belief, the purchase requirement is any or all information required for the purchase. This includes, most notably, the selection of what item to order. The user also confirms or enters a shipping address, shipping method, and payment method needed for the processing of the purchase request.

Amazon Device Support › Dash Button Device Help › Amazon Dash Replenishment›

Set Up Amazon Dash Replenishment

Use your device's companion app or website to set up Amazon Dash Replenishment.

1. **Connect your device to your network using Wi-Fi or Bluetooth.**
   Configure your device to connect to your network using Wi-Fi or Bluetooth through the device companion app or website. For more information on how to connect your device to your network, contact your product manufacturer: Manufacturer Contact Information for Devices with Amazon Dash Replenishment.
2. **Find Dash Replenishment settings in the companion app or website.**
   If you can't find the Dash Replenishment settings, please refer to your manufacturer's help pages.
3. **Select Dash Replenishment and login with your Amazon account.**
   Enter the email address and password associated with your Amazon account, and then tap **Sign in.**
4. **Select the product you would like to reorder.**
   Some devices let you select multiple products. Depending on the product, you may have options like brand, color, size, flavor, or amount.
5. **Confirm your 1-Click shipping and payment information.**
   Dash Replenishment uses this information when you place an order. After you confirm the shipping and payment information, select **Complete setup.**

Tip: To modify your default 1-Click shipping and payment information, visit Manage Addresses and 1-Click Settings. To learn more, go to Update Your Mobile 1-Click.

Select Dash Replenishment and login with your Amazon account. Enter the email address and password associated with your Amazon account, and then tap **Sign in.\ Select the product you would like to reorder.** Some devices let you select multiple products. Depending on the product, you may have options like brand, color, size, flavor, or amount.
https://www.amazon.com/gp/help/customer/display.html?nodeId=201969390

65.   Amazon Dash servers recognize the unique identifier corresponding to the wireless device during a processing of a purchase request for the merchandise regarding the updated condition based on a successful transmission of the item status signal. On information and belief, Amazon.com servers receive information for a unique identifier corresponding to the wireless device during a processing of a purchase request for the merchandise. The Amazon

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servers recognize the unique identifier and identify associated merchandise and/or user account.

Amazon.com recognizes the purchase request for the merchandise associated with the Amazon

Dash Button based on recognition of the unique identifier corresponding to the wireless device.

Amazon creates a purchase order so that the merchandise regarding the updated condition and

associated with the specific Amazon Dash Button can be shipped to the corresponding shipping

address. When the button is pressed, the result is that the product is shipped to a registered

shipping address, and associated payment method is processed. The purchase requirement,

payment method and shipping address are previously registered on the Amazon app for the

Amazon Dash button. Amazon recognizes the unique identifier and creates the purchase order

based on the information the user has registered for the Dash button. See, e.g.:
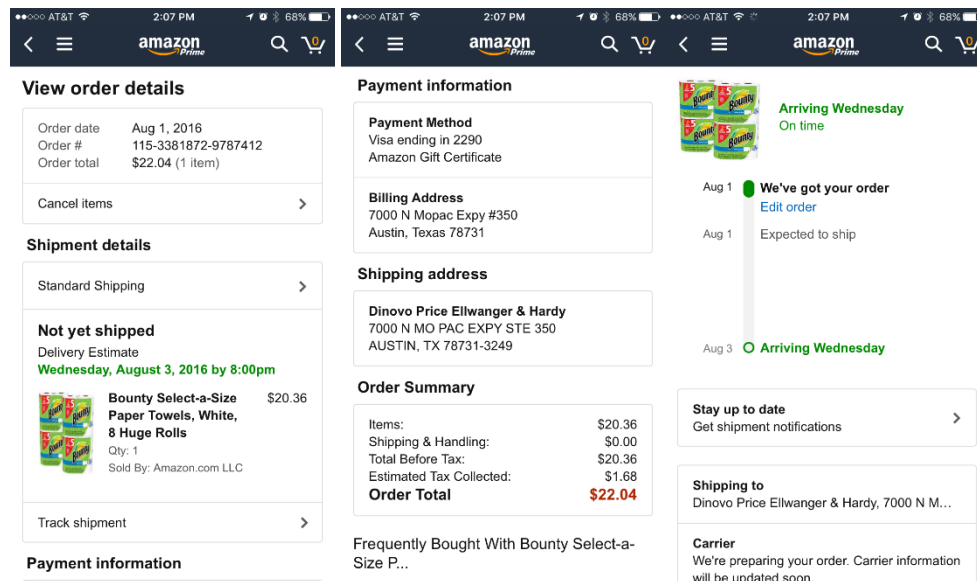
The screenshots above from the "Amazon" App show the order details page and
shipment tracking information resulting from the button press.

66.   Similarly, in the case of Amazon Dash Replenishment products, the unique

identifier corresponding to the wireless device is recognized during a processing of a purchase

request for the merchandise regarding the updated condition based on a successful transmission

of the item status signal.

67. On information and belief, information regarding a user account is communicated through a communication channel to accommodate the processing of the purchase request. At least one generation of the Amazon Dash Buttons are configured to communicate over a wireless local area network to contact parker-gateway-na.amazon.com. (*See* https://github.com/dekuNukem/Amazon_Dash_Button/blob/master/debug_output/successful_transaction.txt.)

68. On information and belief, Amazon Dash Button reorder requests are received by this publicly addressable server, however additional information (such as the Amazon customer's identity, merchandise purchasing preferences, payment information and shipping address among additional information) are required in order to fully process the purchase request to create a purchase order for the merchandise.

69. On information and belief, this information is communicated through a communication channel to accommodate the processing of the purchase request. This may include, but is not necessarily limited to, communication of information from one or more databases storing customer information, one or more databases storing shipping information and one or more databases storing credit card information, including processing of credit card transaction data. These communication channels include, but are not necessarily limited to, network communication channels, inter-process communication channels, bus system communication channels and any other type of communication channel.

70. Similarly, in the case of Amazon Dash Replenishment products, information of a user account is communicated through a communication channel to accommodate the processing of the purchase request. Upon information and belief, Amazon Dash Replenishment order requests are received by an Amazon server, however additional information (such as the Amazon

customer's identity, merchandise purchasing preferences, payment information and shipping address among additional information) are required in order to fully process the purchase request to create a purchase order for the merchandise.

71.   The wireless transmission channel established for transmission of the signal from the Dash Button or Dash Replenishment Device is separate from the network communication channel. The communication channel may be the channel in which information is transmitted across and/or from Amazon servers, e.g., over the internet. On the other hand, the wireless transmission channel is established inside a local wi-fi network when the Dash Button is set up as follows. The Dash Button is associated with the user account in the set up process. The user connects the Amazon Dash Button to the user account using the Amazon App. The wireless device is connected to the portable user terminal device (e.g. an iPhone) through a communication channel. In what is believed to the first version of the Amazon Dash Button, model JK76PL, the wireless device communicates with the portable user terminal device through audio packets through a communication channel. In the set up process, the portable user terminal device transmits packetized information in the form of ultrasound from speaker to the wireless device's built in microphone. This packetized ultrasound contains information to connect the Amazon Dash Button to the local internet network. In what is believed to be the second version of the Amazon Dash Button, model JK29LP, the communication channel is a Bluetooth wireless connection. In the set up process, the portable user terminal device transmits information to the Amazon Dash Button to connect the wireless device to the local internet network. (See generally, e.g., https://mpetroff.net/2016/07/new-amazon-dash-button-teardown-jk29lp/; https://mpetroff.net/2015/05/amazon-dash-button-teardown/.)

72.   When a particular merchandise associated with the Amazon Dash Button needs to be reordered, the Amazon Dash Button customer presses the Dash Button's button. In response, the Amazon Dash Button transmits an item status signal to provide Amazon with information regarding an updated condition of a merchandise. Upon receipt of the item status signal, Amazon learns their customer does not have enough desired quantity of the merchandise associated with the Dash button and therefore additional merchandise should be shipped to the customer. In this manner, the items status signal transmitted by the Amazon Dash Button provides information regarding an updated condition of a merchandise (e.g., inventory levels are lower than desired, please ship more product).

73.   Similarly, the wireless signal transmitter of Amazon Dash Replenishment products is designated to transmit an item status signal to provide information regarding an updated condition of a merchandise.   The Amazon Dash Replenishment product is capable of determining an updated condition of a merchandise (e.g., printer toner is low) and will in response to that determination transmit, though a wireless transmission channel, an item status signal to provide information regarding an updated condition (e.g., eventually resulting in the placement of an replenishment purchase order).

74.   The Accused Dash Instrumentalities further comprise a central controller housed in Amazon's Dash servers, such as a CPU. In response to the Amazon Dash Button's button being pushed, the Button connects to Amazon servers through the wireless transmission channel in the local wireless communication network and its connection to the Internet. The Dash Button transmits an item status signal, which includes but is not necessarily limited to, information for the Amazon Dash Button's unique identifier (e.g., Device Serial Number) in association with an indication that the customer wishes to order additional merchandise according to the preferences

previously configured during the setup process. The following is a non-limiting example of a

CPU used in Amazon servers. The actual server and CPU types used by the Dash service may

vary:

General Purpose   Compute Optimized   Memory Optimized

Accelerated Computing   Storage Optimized

T2

T2 instances are Burstable Performance Instances that provide a baseline level of CPU performance with the ability to burst above the baseline.

T2 Unlimited instances can sustain high CPU performance for as long as a workload needs it. For most general-purpose workloads, T2 Unlimited instances will provide ample performance without any additional charges. If the instance needs to run at higher CPU utilization for a prolonged period, it can also do so at a flat additional charge of 5 cents per vCPU-hour.

The baseline performance and ability to burst are governed by CPU Credits. T2 instances receive CPU Credits continuously at a set rate depending on the instance size, accumulating CPU Credits when they are idle, and consuming CPU credits when they are active. T2 instances are a good choice for a variety of general-purpose workloads including micro-services, low-latency interactive applications, small and medium databases, virtual desktops, development, build and stage environments, code repositories, and product prototypes. For more information see Burstable Performance Instances.

Features:

- High frequency Intel Xeon processors

- Burstable CPU, governed by CPU Credits, and consistent baseline performance

- Lowest-cost general purpose instance type, and Free Tier eligible*

- Balance of compute, memory, and network resources

Model	vCPU	CPU Credits / hour	Mem (GiB)	Storage
t2.nano	1	3	0.5	EBS-Only
t2.micro	1	6	1	EBS-Only
t2.small	1	12	2	EBS-Only
t2.medium	2	24	4	EBS-Only
t2.large	2	36	8	EBS-Only
t2.xlarge	4	54	16	EBS-Only
t2.2xlarge	8	81	32	EBS-Only

(See https://aws.amazon.com/ec2/instance-types/.)

75.   Amazon Dash servers recognize the unique identifier corresponding to the

wireless device during a processing of a purchase request for the merchandise regarding the

updated condition based on a successful transmission of the item status signal. A memory is

inherent in the Amazon server so that they may recognize the unique identifier corresponding to

each user's Dash Button. The memory in Amazon's server-side CPU is further configured to

store information about the inventory of the item being ordered by a user of a Dash Button. Information about the item's inventory also includes information about a requirement of the item., The above representative example of an Amazon server illustrates the memory associated with each type of CPU.

76.   Amazon Dash servers include a network interface that is configured to provide a communication to each user's Dash Button via a network communication channel (the internet). This network interface can be, for instance, an internet hub or gateway residing at Amazon server facilities. On information and belief, Amazon.com servers receive information for a unique identifier corresponding to the wireless device during a processing of a purchase request for the merchandise. The Amazon servers recognize the unique identifier and identify associated merchandise and/or user account. Amazon.com recognizes the purchase request for the merchandise associated with the Amazon Dash Button based on recognition of the unique identifier corresponding to the wireless device. Amazon creates a purchase order so that the merchandise regarding the updated condition and associated with the specific Amazon Dash Button can be shipped to the corresponding shipping address.

77.   The central controller, e.g., a CPU in Amazon Dash servers, is configured to identify the item being ordered by a user in connection with recognition of the information corresponding to the unique identifier for the Dash Button.

78.   The central controller, e.g., a CPU in Amazon Dash servers, is configured to communicate, through the Internet (including through the Amazon.com website or the Amazon mobile app) merchant information and shipping information relevant to the replenishment of the inventory of the item ordered by a user of a Dash Button. This merchant information (pertaining

to Amazon itself, for instance, as the merchant of the item) and shipping information for the

order is communicated to the user in the form of an order confirmation. See, e.g.:
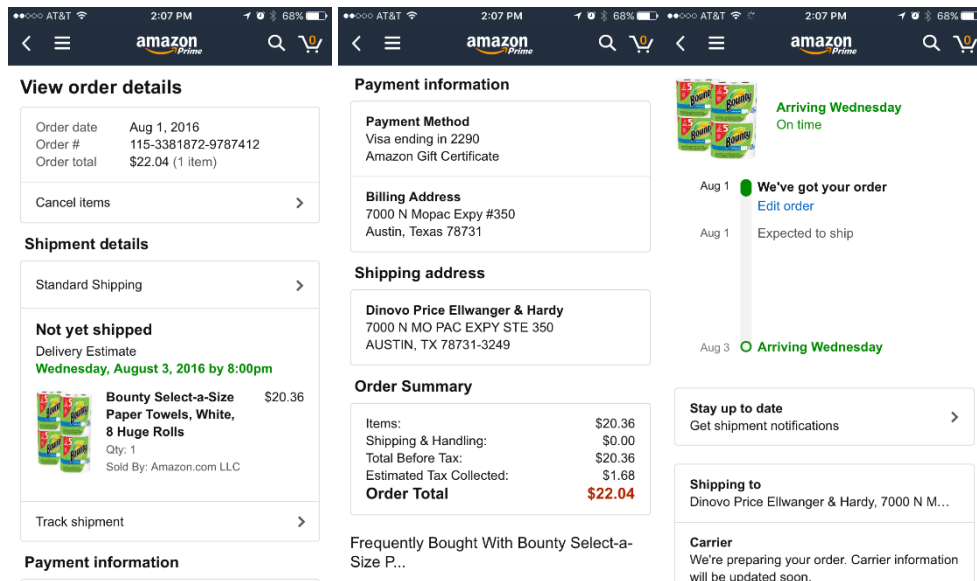
The screenshots above from the "Amazon" App show the order details page and shipment

tracking information resulting from the button press.

79.   Defendant has and continues to jointly infringe one or more of the asserted claims

of the '983 patent by the collective conduct of Amazon and Vector Security, Inc. ("Vector

Security") in making, using, offering to sell, selling, and importing the Vector Security Voice

Control system with the Amazon Echo Dot. (*See, e.g.*,

https://www.vectorsecurity.com/products/voice-control.) In particular, Vector Security and

Amazon have effectively formed a joint enterprise such that the infringing acts are attributable to

Vector Security, who provides a home security system with a wireless hub, and Amazon, who

provides the Echo Dot device and Alexa voice application.

80.   On information and belief, the Accused Echo Instrumentalities, Accused Fire TV

Instrumentalities, and Accused Dash Instrumentalities are used, marketed, provided to, and/or

used by or for each of Defendant's partners, clients, customers and end users across the country and in this District.

81.   Defendant was made aware of the '983 patent and its infringement thereof at least as early as the filing of this Complaint.

82.   Upon information and belief, since at least the time Defendant received notice, Defendant has induced and continues to induce others to infringe at least one claim of the '983 patent under 35 U.S.C. § 271(b) by, among other things, and with specific intent or willful blindness, actively aiding and abetting others to infringe, including but not limited to Defendant's partners, clients, customers, and end users, whose use of the Accused Echo Instrumentalities, Accused Fire TV Instrumentalities, and Accused Dash Instrumentalities constitutes direct infringement of at least one claim of the '983 patent.

83.   In particular, Defendant's actions that aid and abet others such as its partners, customers, clients, and end users to infringe include advertising and distributing the Accused Echo Instrumentalities, Accused Fire TV Instrumentalities, and Accused Dash Instrumentalities and providing instruction materials, training, and services regarding the Accused Echo Instrumentalities, Accused Fire TV Instrumentalities, and Accused Dash Instrumentalities. On information and belief, Defendant has engaged in such actions with specific intent to cause infringement or with willful blindness to the resulting infringement because Defendant has had actual knowledge of the '983 patent and knowledge that its acts were inducing infringement of the '983 patent since at least the date Defendant received notice that such activities infringed the '983 patent.

84.   Upon information and belief, Defendant is liable as a contributory infringer of the '983 patent under 35 U.S.C. § 271(c) by offering to sell, selling and importing into the United

States wireless hub systems, wireless transmitters, central controllers, management centers

systems, and information processing devices to be especially made or adapted for use in an

infringement of the '983 patent. The Accused Echo Instrumentalities, Accused Fire TV

Instrumentalities, and Accused Dash Instrumentalities are a material component for use in

practicing the '983 patent and are specifically made and are not a staple article of commerce

suitable for substantial non-infringing use.

85.   Since at least the filing of this Complaint, Defendant's infringement has been

willful.

86.   Plaintiff has been harmed by Defendant's infringing activities.

COUNT II – INFRINGEMENT OF U.S. PATENT NO. 9,729,918

87.   The allegations set forth in the foregoing paragraphs 1 through 86 are

incorporated into this Second Claim for Relief.

88.   On August 8, 2017, U.S. Patent No. 9,729,918 ("the '918 patent"), entitled

"METHOD AND SYSTEM FOR EFFICIENT COMMUNICATION," was duly and legally

issued by the United States Patent and Trademark Office. A true and correct copy of the '918

patent is attached as Exhibit 2.

89.   The inventions of the '918 patent resolve technical problems related to the use of

a multi-function wireless hub and management center system for information processing. For

example, the '918 patent overcomes limitations in the prior art relating to efficiently delivering

multimedia information content received over a wireless communication network.

90.   The inventions allow a user to efficiently set up a system comprising a hub and

management center system to communicate with each other to facilitate retrieval of a

compressed information content requested from the hub and production by a digital television.

Furthermore, the inventions of the '918 patent enable a user to pair a variety of wireless hubs with a variety of management center systems to provide increased cross-platform compatibility.

91.   The claims of the '918 patent recite an invention that is not merely the routine or conventional use of a wireless hub or management center system. Instead, the invention relies on using a mapping table and a unique hub identifier to efficiently process incoming requests for multimedia content and route decompressed content to the appropriate destination. The '918 patent claims thus how signals are received and transmitted over a plurality of network channels.

92.   The technology claimed in the '918 patent does not preempt all ways of using wireless hub or management center based information content processing or decoding, nor preempt the use of all wireless hub or management center based information content processing or decoding systems, nor preempt any other well-known or prior art technology.

93.   Accordingly, each claim of the '918 patent recites a combination of elements sufficient to ensure that the claim in practice amounts to significantly more than a patent on an ineligible concept.

94.   Plaintiff is the assignee and owner of the right, title and interest in and to the '918 patent, including the right to assert all causes of action arising under said patents and the right to any remedies for infringement of them.

95.   Upon information and belief, Defendant has and continues to directly infringe at least claim 135 of the '918 patent by making, using, selling, importing and/or providing and causing to be used a system that includes its backend servers, Amazon Echo devices, and/or the Amazon Fire TV family of devices (i.e., the "Accused Echo Instrumentalities" and "Accused Fire TV Instrumentalities").

96.   In particular, claim 135 of the '918 patent recites a management center system

and a wireless hub associated with a unique hub identifier, wherein the wireless hub is

configured to receive a request for a particular information content and send a data package to

the management center to retrieve the requested information content. Claim 135 further recites

that the wireless hub is configured to decompress signals corresponding to the information

content and process the signals for transmission through a high definition multimedia interface

(HDMI) to accommodate production on a digital television.

97.   The Accused Echo Instrumentalities and Accused Fire TV Instrumentalities

infringe claim 135 of the '918 patent. By way of example, Amazon's backend servers for the

Fire TV family function as a management center and the Amazon Echo as a wireless hub. The

Amazon Echo communicates with Amazon backend servers to perform various operations. The

Amazon Echo acts as a wireless hub in various ways, including, for example, by interacting

directly and/or indirectly with smart home devices. See, e.g., https://www.amazon.com/all-new-

amazon-echo-speaker-with-wifi-alexa-dark-charcoal/dp/B06XCM9LJ4.

98.   Upon information and belief, the Amazon Echo has a unique identifier that is

stored in at least one mapping table. For example, a user's Fire and Echo devices are linked to

the user's Amazon account, which indicates that the Amazon backend servers maintain a

mapping table between device identifiers and Amazon account IDs. See, e.g.:
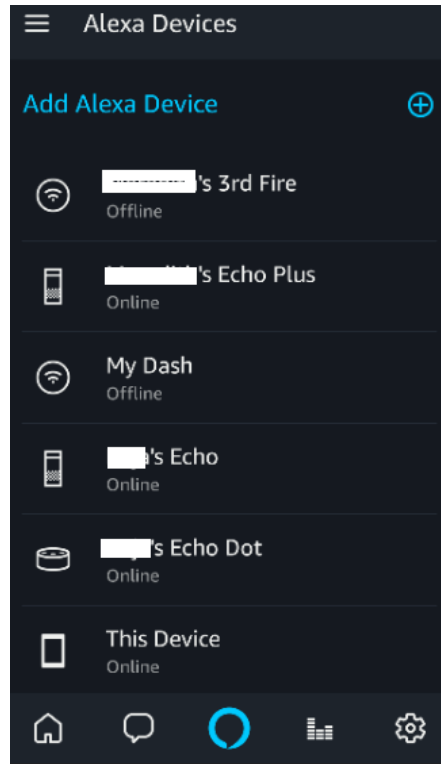
99.   Service profile information of the user's Amazon account, such as the

online/offline status of the user's Echo/Fire devices, is stored in at least one database. See, e.g.:
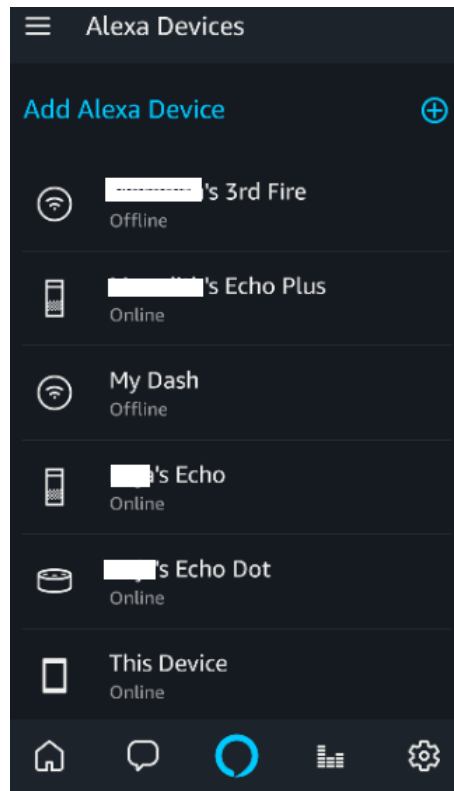
100.   Devices registered to the user's account are also viewable online at the Amazon

website.


(https://www.amazon.com/hz/mycd/myx#/home/devices/1.)

101.   The Amazon Echo can play music requested by a user. For example, a user can

say "Play [song/album/artist]" to the Echo. The statement "Play [song/album/artist]" is a request

for particular information content that is received by the Echo. In the case where the song is

available from the user's Amazon music account, the Echo sends a data package (e.g., song

request) to the Amazon backend servers (management center system) through a wireless

communication network (e.g., including the user's wireless LAN) based on the "Play

[song/album/artist]" request. Further, the user can select a specific Echo device to play the

music, indicating that the unique identifier of the selected Echo device is included in the request.

See, e.g., https://www.amazon.com/gp/help/customer/display.html?nodeId=201601830.

102.   The Amazon backend server(s) process the music request, including identifying

the specific Echo devices where playback is to occur. If a device group name is provided, then

the devices within the device group are recognized. See, e.g.:
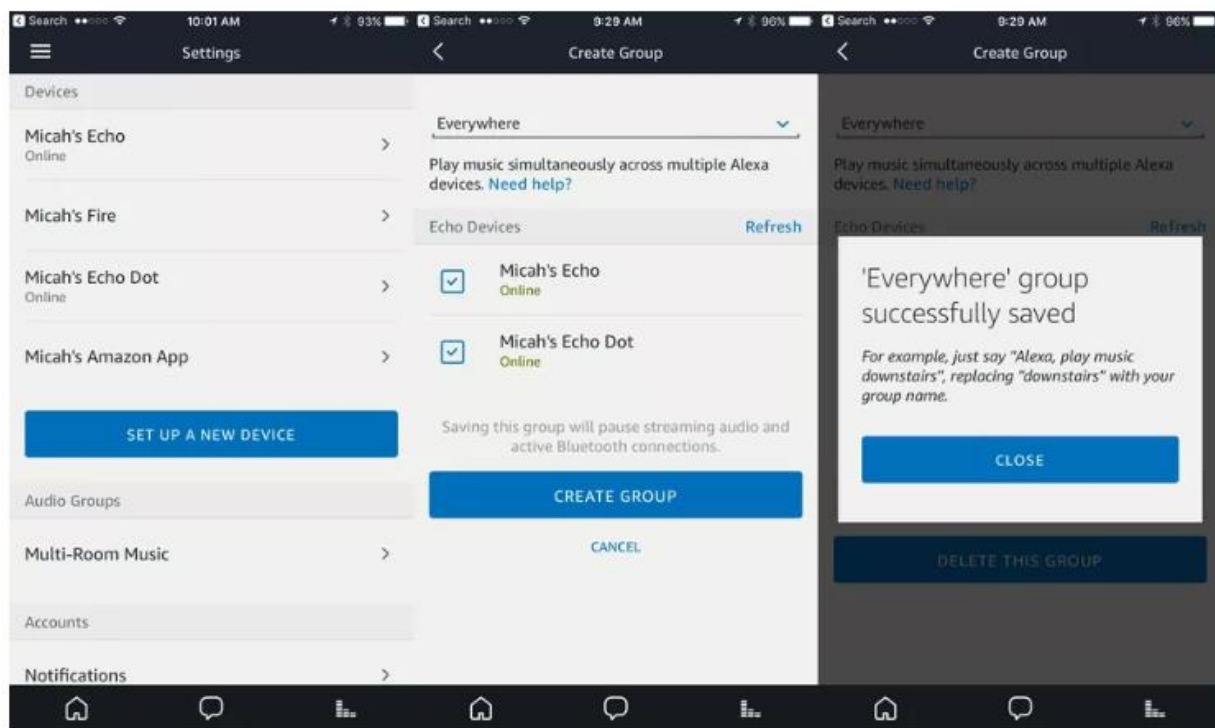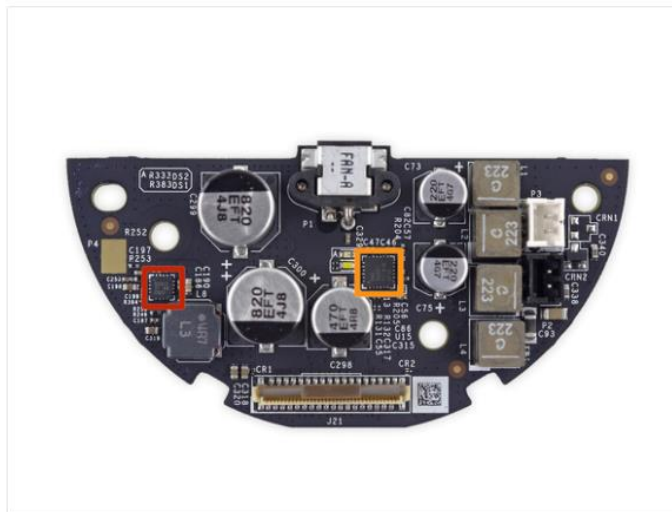

To set up multiroom audio, head to settings in the Alexa app. Scroll down until you find Audio
Groups and select Multi-Room Music. The app will then prompt you to create a group,
making it easier to control music playback by saying things like "Alexa play music upstairs"
instead of calling out individual speakers. Once you create your groups, setup is complete.

(https://www.theverge.com/2017/8/29/16219978/amazon-echo-multi-room-music-playback-how-to.)

103.   The Amazon Echo receives the requested song audio, which is compressed (e.g., in MP3 or another digital music compression format supported by the Echo). An audio codec within the Echo converts a signal of the requested song audio into a format that is playable on the Echo speaker (accommodate production of the particular information content). The Amazon Echo includes, among other components, an audio codec (e.g., a coder/decoder) for decompression and playback of compressed audio signals. See, e.g.:

(https://www.ifixit.com/Teardown/Amazon+Echo+Teardown/33953, evidencing Texas Instruments (TLV320DAC3203); see also http://www.ti.com/lit/ds/symlink/tlv320dac3203.pdf.)

104.   The Amazon Echo supports various encoded/compressed data formats. The Amazon Echo decompresses the signal during playback. See, e.g.:

(https://forums.developer.amazon.com/articles/38590/alexa-audioplayer-approved-formats.html.)

105.   The Amazon Echo can also be used to control a Fire TV device. For example, the Amazon Echo can receive a request "Play [title] on [app]." The requested video stream is multimedia information content (e.g., includes both audio and video) and is to be produced by a digital television that is connected to the Fire TV device. On information and belief, the Amazon backend server processes the user's video request in association with transmission of the video stream to the Fire TV devices. Fire TV devices are connected to digital televisions via HDMI. See, e.g.:

Control Your Fire TV

Once you've completed the linking process, you can use your Alexa-enabled devices to control the following features on your Fire TV:

To do this on your Fire TV ...	Say this to your Alexa device...
Go to Fire TV **Note:** For Amazon Fire TV and Fire TV Stick this requires a connected TV that supports HDMI CEC. With HDMI CEC enabled, Alexa can power on your connected TV and switch to the HDMI channel for your Fire TV. To learn more, go to Amazon Fire TV Settings Basics.	"Watch Fire TV."
Play a movie or TV show Alexa can play content from Prime Video and other supported apps installed on your Fire TV.	"Watch [title]." "Play [title] on [app]." "Play [genre] on [app]."

(https://www.amazon.com/Stick-Basic-Available-Non-US-Customers/dp/B01ETRGE68.)

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(https://www.amazon.com/all-new-amazon-fire-tv-4k-uhd-streaming-media-

player/dp/B01N32NCPM.)

106.   On information and belief, the Accused Echo Instrumentalities and Accused Fire

TV Instrumentalities are used, marketed, provided to, and/or used by or for each of Defendant's

partners, clients, customers and end users across the country and in this District.

107.   Defendant was made aware of the '918 patent and its infringement thereof at least

as early as August 8, 2017.

108.   Upon information and belief, since at least the time Defendant received notice,

Defendant has induced and continues to induce others to infringe at least one claim of the '918

patent under 35 U.S.C. § 271(b) by, among other things, and with specific intent or willful

blindness, actively aiding and abetting others to infringe, including but not limited to

Defendant's partners, clients, customers, and end users, whose use of the Accused Echo

Instrumentalities and Accused Fire TV Instrumentalities constitutes direct infringement of at

least one claim of the '918 patent.

109.   In particular, Defendant's actions that aid and abet others such as its partners,

customers, clients, and end users to infringe include advertising and distributing the Accused

Echo Instrumentalities and Accused Fire TV Instrumentalities, and providing instruction

materials, training, and services regarding the Accused Echo Instrumentalities and Accused Fire

TV Instrumentalities . On information and belief, Defendant has engaged in such actions with

specific intent to cause infringement or with willful blindness to the resulting infringement

because Defendant has had actual knowledge of the '918 patent and knowledge that its acts were

inducing infringement of the '918 patent since at least the date Defendant received notice that

such activities infringed the '918 patent.

110.   Upon information and belief, Defendant is liable as a contributory infringer of the

'918 patent under 35 U.S.C. § 271(c) by offering to sell, selling and importing into the United

States management center systems and wireless hubs to be especially made or adapted for use in

an infringement of the '918 patent. The Accused Echo Instrumentalities and Accused Fire TV

Instrumentalities are a material component for use in practicing the '918 patent and are

specifically made and are not a staple article of commerce suitable for substantial non-infringing

use.

111.   Since at least August 8, 2017, Defendant's infringement has been willful.

112.   Plaintiff has been harmed by Defendant's infringing activities.

COUNT III – INFRINGEMENT OF U.S. PATENT NO. 9,942,798

113.   The allegations set forth in the foregoing paragraphs 1 through 112 are incorporated into this Third Claim for Relief.

114.   On April 10, 2018, U.S. Patent No. 9,942,798 ("the '798 patent"), entitled "METHOD AND SYSTEM FOR EFFICIENT COMMUNICATION," was duly and legally issued by the United States Patent and Trademark Office. A true and correct copy of the '798 patent is attached as Exhibit 3.

115.   The inventions of the '798 patent resolve technical problems related to the use of a multi-function wireless hub and management system for information processing. For example, the '798 patent overcomes limitations in the prior art relating to efficiently delivering multimedia information content received over a wireless communication network. Furthermore, the '798 patent overcomes limitations in the prior art relating to managing alerts as to a status of an item over the internet or other next-generation wireless communication network.

116.   The inventions of the '798 patent allow a user to efficiently set up a system comprising a hub and management center system to communicate with each other to facilitate retrieval of a compressed information content requested from the hub and production by a digital television. Furthermore, the inventions of the '798 patent enable a user to pair a variety of wireless hubs with a variety of management center systems to provide increased cross-platform compatibility.

117.   The inventions of the '798 patent allow a user to efficiently set up a system comprising a hub and one or more sensors capable of sensing the status of an item, such that the hub can detect which of the plurality of sensors has sensed an updated status and notify a user device accordingly. Furthermore, the inventions of the '798 patent enable a user to pair a variety

of sensors supporting a wide range of short-range communications to provide increased compatibility with the hub.

118.   The claims of the '798 patent recite an invention that is not merely the routine or conventional use of a wireless hub or management center system. Instead, the invention relies on using a network interface and a wireless channel concurrently to both decompress a compressed information signal and to communicate information regarding the item status of an item in connection with an updated status of the item. The '798 patent claims thus specify how signals are received and transmitted over both channels to perform both functions.

119.   The technology claimed in the '798 patent does not preempt all ways of using wireless hub based decoding or monitoring systems, nor preempt the use of all wireless hub based decoding or monitoring systems, nor preempt any other well-known or prior art technology.

120.   Accordingly, each claim of the '798 patent recites a combination of elements sufficient to ensure that the claim in practice amounts to significantly more than a patent on an ineligible concept.

121.   Plaintiff is the assignee and owner of the right, title and interest in and to the '798 patent, including the right to assert all causes of action arising under said patents and the right to any remedies for infringement of them.

122.   Upon information and belief, Defendant has and continues to directly infringe at least claim 1 of the '798 patent by making, using, selling, importing and/or providing and causing to be used a management system, including but not limited to the Accused Echo Instrumentalities, the Accused Fire TV Instrumentalities, and the Amazon Fire HD family of tablets (the "Accused Tablet Instrumentalities").

123.   In particular, claim 1 of the '798 patent recites a management system comprising a centralized hub system, further comprising an encoder and decoder, wherein the hub system is configured to receive an compressed signal for a requested information content over a wireless network, decompress it, and encode the decompressed signal for transmission over a high definition digital output interface to accommodate production the requested information content on a high definition digital television. The hub system is further configured to communicate information for managing an item status of a household item in connection with a short range wireless communication regarding an updated status of the item.

124.   The Accused Echo Instrumentalities, the Accused Fire TV Instrumentalities, and the Accused Tablet Instrumentalities infringe claim 1 of the '798 patent. By way of example, Amazon's Fire tablets (such as the exemplary Fire HD 10) can be mirrored through Amazon's Fire TV devices, such as the Fire TV Stick on a digital television.

125.   The Fire HD 10 and/or Fire TV devices support various video and audio codecs (encoders/decoders). See, e.g.:

Video Codecs		Audio Codecs	
H.263	D (HW) baseline, 1080P@30fps	AAC LC	D (SW)
H.264 AVC	D (HW) High profile, L4.1 1080p@30FPS, E (HW)	HE AAC v1, HE AAC v2, AAC ELD, OPUS, MIDI, Vorbis	D (SW)
H.265 HEVC	D(HW) Main Profile L4 1080p@30FPS		
MPEG2	D (HW) 1080P@30FPS	AMR NB, AMR WB, FLAC	D (SW)
MPEG4	D (HW) Advanced Simple Profile@L5 1080P@30FPS	MP3	D (HW)
VP8	D (HW)	EAC3	D (Dolby)
VP9	D (HW)	EAC3 JOC	D (Dolby)

(https://developer.amazon.com/docs/fire-tablets/ft-media-specs-custom.html.)

126.   On information and belief, the Fire HD 10 tablet and Fire TV devices are each associated with a unique identifier that is stored in at least one mapping table. For example, a user's Fire and Echo devices are linked to the user's Amazon account, which indicates that Amazon maintains a mapping table between device identifiers and Amazon account IDs. As yet another example, because the Fire HD 10 can be used to stream video, a network address of the Fire HD 10 is stored in a mapping table (e.g., LAN IP address table). Furthermore, the Fire HD 10 tablet includes video streaming apps, such as Netflix. See, e.g.:

(https://www.thestreet.com/story/13393429/1/amazon-fire-hd-10-review-plenty-to-like-but-is-it-enough.html.)
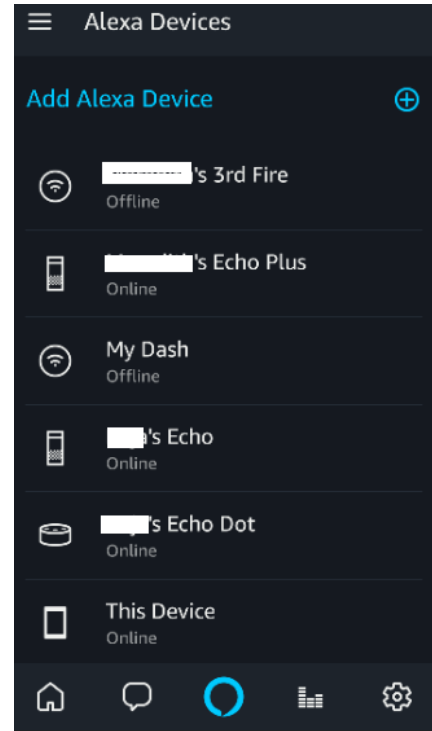
127.   When a user streams video (e.g., Netflix, Amazon Prime Video, etc.), the Fire HD 10 and/or Fire TV devices wirelessly receive information content (e.g., video stream data). The information content is requested by the user because the user selects what video to watch. The request is made in connection with identifying the unique identifier (e.g., LAN IP address) of the

Fire HD 10 and/or Fire TV devices, so that the video stream packets can be successfully

delivered. The video stream is a compressed digital video signal, such as H.264 or MP4. See,

e.g.:
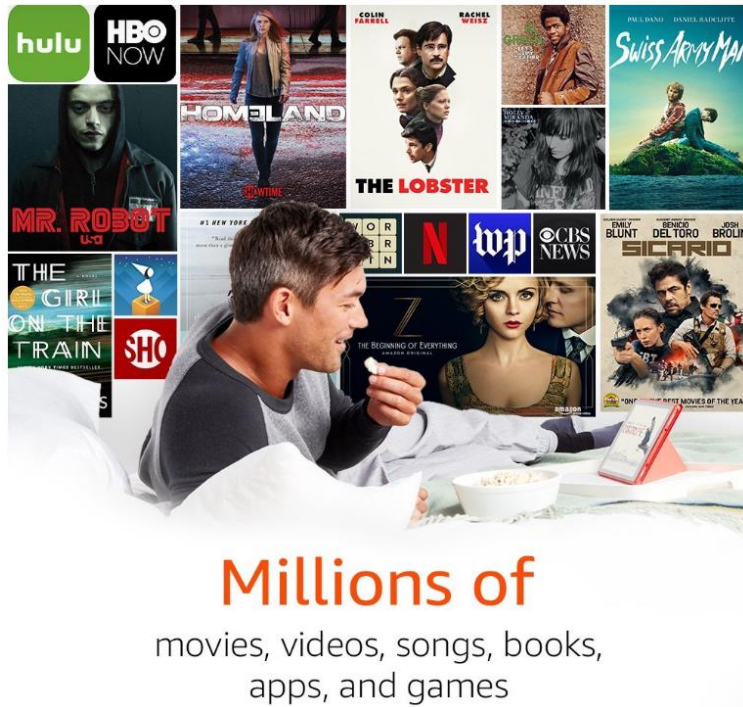
128. The Fire HD 10 and/or Fire TV devices perform the conversion for production of

the requested information content on a high definition digital television. For example, the Fire

HD 10 tablet can wirelessly mirror to a Fire TV stick. On information and belief, because the

streamed video is displayed on the Fire HD 10, the Fire HD 10 decompresses the received

compressed digital video (e.g. H.264 or MP4) signal to a decompressed video signal that is

shown on the Fire HD 10's display screen. The decompressed video is concurrently mirrored to

the Fire TV Stick. See, e.g.:

Use Display Mirroring on Amazon Fire TV

You can use your Amazon Fire TV to wirelessly display your compatible phone or tablet screen on your TV screen.

You can mirror your display on most phones or tablets that support Miracast. Some of these devices include:

- Android devices running Android OS 4.2 (Jelly Bean) or higher (performance can vary)
- Kindle Fire HDX 7" (3rd Generation) and Kindle Fire HDX 8.9" (3rd Generation)
- Fire HDX 8.9 (4th Generation)
- Fire HD 8 (5th Generation) and Fire HD 10 (5th Generation)
- Fire phone

(https://www.amazon.com/gp/help/customer/display.html?nodeId=201453020.)

   129. The Fire HD 10 and/or Fire TV devices are configured to have Amazon's Alexa

voice app installed. The Alexa App can be used to control smart home devices. See, e.g.:

Using the Alexa App

You can set and manage settings for some Alexa features using our free Amazon Alexa App for Fire OS, Android, iOS, and supported desktop web browsers (available at alexa.amazon.com).

Your Alexa-enabled Fire tablet should already have the Alexa app installed. You can find it with your other apps on the Home screen by swiping up if needed.

(https://www.amazon.com/gp/help/customer/display.html?nodeId=202083830.)

Amazon Device Support › Alexa Support › Smart Home ›

Connect a Smart Home Device to Alexa

After you set up a compatible smart home device, enable the skill and then ask Alexa to discover your devices.

Important: Before you enable a smart home skill, please read Safety Information for Using Smart Home Devices with Alexa.

For smart home devices that connect to Echo Plus using a simple set up, go to Supported Smart Home Devices for Echo Plus.

Before you begin:

- Check your smart home device is compatible with Alexa.
- Complete setup for your smart home device, using the manufacturer's companion app or website.
- Connect the device to the same Wi-Fi network as your Alexa devices.
- Download the Alexa app on your mobile device, or use https://alexa.amazon.com.
- Download and install the latest software updates for your devices.

Note: To learn how to connect a smart home camera to Alexa, go to Use Smart Home Cameras with Alexa.

(https://www.amazon.com/gp/help/customer/display.html?nodeId=201749240.)

Example: The customer says "Alexa, turn on my kitchen light."

1. Amazon Echo or other Alexa-enabled device listens to the command and sends it to the Alexa service for interpretation. The Alexa service determines the customer's intent and routes this command to the Alexa Lighting API.

2. The Alexa Lighting API interprets the *action* as "turn on" and the *device name* as "kitchen light". It then sends a message called a *directive* to the *skill adapter*, hosted in AWS Lambda. The directive includes:

   a. The action (turn on).

   b. The device identifier (an ID representing the device that the customer named "kitchen light").

   c. Information authenticating the customer.

3. The skill adapter uses the authentication information, action, and device identifier to communicate with the device cloud.

4. The device cloud performs the requested action on the given device on the customer's network. In this example, the device cloud turns on the light identified as "kitchen light."

5. The skill adapter sends a response back to the Alexa Lighting API indicating whether it was successful. Alexa uses this response to determine the appropriate response to the customer, for example stating "OK" to indicate that the request has been completed, or informing the customer if there was a problem.

(https://developer.amazon.com/public/binaries/content/assets/html/alexa-lighting-api.html.)

130.   As one particular example of controlling smart devices, Alexa can control a

Philips Hue smart bulb that is connected to a Philips Hue hub. Each bulb has a unique identifier

that is used to communicate with the bulb. See, e.g.:

Your home just got a little smarter. And brighter. Philips Hue works with Amazon Alexa to control your lights with your voice. Use the Alexa Voice Service to switch on your Philips Hue lights before getting out of bed, to dim your Hue lights from the couch to watch a movie, or to set the lights for reading in your favorite chair —all without lifting a finger. New functionalities are constantly added to provide the best voice controlled lighting experience.

(https://www2.meethue.com/en-us/friends-of-hue/amazon-alexa.)

Turning a light on and off

Okay now that we have a username with permission to use the system lets start having some fun with it.

Each light has its own URL. You can see what lights you have with the following command:

Address	`http://<bridge ip address>/api/1028d66426293e821ecfd9ef1a0731df/lights`
Body	
Method	GET

You should get a JSON response with all the lights in your system and their names.

Now let's get information about a specific light. The light with id 1.

Address	`http://<bridge ip address>/api/1028d66426293e821ecfd9ef1a0731df/lights/1`
Body	
Method	GET

(https://www.developers.meethue.com/documentation/getting-started.)

131.   The Philips Hue hub communicates with the Philips Hue smart bulb using Zigbee, a short range wireless communication protocol. See, e.g.:

ZigBee technology

Philips Hue is based on ZigBee, a low-power and reliable technology to control your lights. New features and improvements are continuously added to the system. Updates to both software and firmware are done wirelessly and seamlessly, directly to your Philips Hue product

(https://www2.meethue.com/en-us/p/hue-bridge/046677458478.)
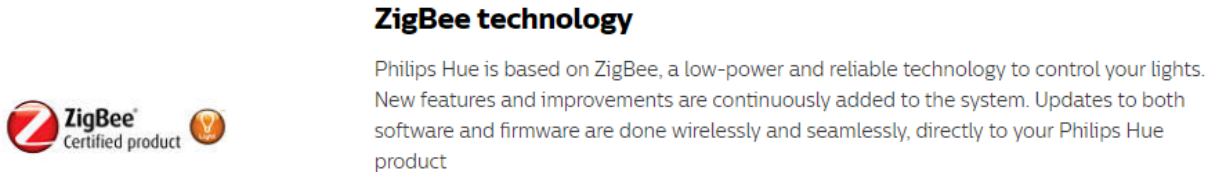
132.   Information such as the status of a Philips Hue smart bulb, for example, is communicated to the Alexa app on the Fire HD 10, which displays a status of the smart bulb based on the information. See, e.g.:

Most Alexa commands that work on Amazon's Echo speakers work on the Fire HD 10. We were able to pair a Philips Hue bulb and a D-link wireless plug using the Fire HD 10's companion Alexa app, and shuffle tracks from Elton John's *Goodbye Yellow Brick Road* on Amazon Prime Music.

(https://www.digitaltrends.com/tablet-reviews/amazon-fire-hd-10-2017-review/.)

133.   On information and belief, the Accused Echo Instrumentalities, the Accused Fire TV Instrumentalities, and the Accused Tablet Instrumentalities are used, marketed, provided to, and/or used by or for each of Defendant's partners, clients, customers and end users across the country and in this District.

134.   Defendant was made aware of the '798 patent and its infringement thereof at least as early as the filing of this Complaint.

135.   Upon information and belief, since at least the time Defendant received notice, Defendant has induced and continues to induce others to infringe at least one claim of the '798 patent under 35 U.S.C. § 271(b) by, among other things, and with specific intent or willful blindness, actively aiding and abetting others to infringe, including but not limited to

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Defendant's partners, clients, customers, and end users, whose use of the Accused Echo Instrumentalities, the Accused Fire TV Instrumentalities, and the Accused Tablet Instrumentalities constitutes direct infringement of at least one claim of the '798 patent.

136.   In particular, Defendant's actions that aid and abet others such as its partners, customers, clients, and end users to infringe include advertising and distributing the Accused Echo Instrumentalities, the Accused Fire TV Instrumentalities, and the Accused Tablet Instrumentalities and providing instruction materials, training, and services regarding the Accused Echo Instrumentalities, the Accused Fire TV Instrumentalities, and the Accused Tablet Instrumentalities . On information and belief, Defendant has engaged in such actions with specific intent to cause infringement or with willful blindness to the resulting infringement because Defendant has had actual knowledge of the '798 patent and knowledge that its acts were inducing infringement of the '798 patent since at least the date Defendant received notice that such activities infringed the '798 patent.

137.   Upon information and belief, Defendant is liable as a contributory infringer of the '798 patent under 35 U.S.C. § 271(c) by offering to sell, selling and importing into the United States management systems and centralized hub systems to be especially made or adapted for use in infringement of the '798 patent. The Accused Echo Instrumentalities, the Accused Fire TV Instrumentalities, and the Accused Tablet Instrumentalities are a material component for use in practicing the '798 patent and are specifically made and are not a staple article of commerce suitable for substantial non-infringing use.

138.   Since at least the filing of this Complaint, Defendant's infringement has been willful.

139.   Plaintiff has been harmed by Defendant's infringing activities.

COUNT IV – INFRINGEMENT OF U.S. PATENT NO. 9,723,443

140.   The allegations set forth in the foregoing paragraphs 1 through 139 are incorporated into this Fourth Claim for Relief.

141.   On August 1, 2017, U.S. Patent No. 9,723,443 ("the '443 patent"), entitled "SYSTEM AND METHOD FOR PROVIDING LOCALLY APPLICABLE INTERNET CONTENT WITH SECURE ACTION REQUESTS AND ITEM CONDITION ALERTS," was duly and legally issued by the United States Patent and Trademark Office. A true and correct copy of the '443 patent is attached as Exhibit 4.

142.   The inventions of the '443 patent resolve technical problems related to the use of a wireless transmitter and a central controller for facilitating electronic communications. For example, the '443 patent overcomes limitations in the prior art relating to efficiently transmitting a signal to increase household inventory of an item and processing a purchase request for the item.

143.   The inventions of the '443 patent allow a user to efficiently set up a system comprising a wireless transmitter and a central controller to facilitate secure receipt and performance of action requests such as payment requests. Furthermore, the claims of the '443 patent recite an invention that is not merely the routine or conventional use of a wireless transmitter or central controller. A stated advantage is that the '443 patent recites a secure communication channel separate from a short range wireless communication channel, thereby providing greater bandwidth and range to accommodate additional, more detailed communications related to the action request.

144.   The technology claimed in the '443 patent does not preempt all ways of using systems comprising wireless transmitters and central controllers to facilitate order processing based on a received signal corresponding to a household inventory of an item, nor preempt the

use of all wireless transmitters and central controllers, nor preempt any other well-known or

prior art technology.

145. Accordingly, each claim of the '443 patent recites a combination of elements

sufficient to ensure that the claim in practice amounts to significantly more than a patent on an

ineligible concept.

146. Plaintiff is the assignee and owner of the right, title and interest in and to the '443

patent, including the right to assert all causes of action arising under said patents and the right to

any remedies for infringement of them.

147. Upon information and belief, Defendant has and continues to directly infringe at

least claims 1 and 29 of the '443 patent by making, using, selling, importing and/or providing

and causing to be used a management system, including but not limited to the Accused Dash

Instrumentalities.

148. In particular, claim 1 of the '443 patent recites a system comprising a central

controller, a wireless transmitter, and a memory. The wireless transmitter is configured to

transmit an item status signal in connection with an initiation of the replenishment of an item.

The memory is configured to store a unique identifier associated with the item and the central

controller is configured to receive the item status signal and, identify the item using the unique

identifier, and communicate information for processing a purchase request for the item, including

shipping payment and address information, and send a confirmation regarding the processing of

the purchase request.

149. Claim 29 of the '443 patent recites a wireless device configured to transmit,

through a wireless channel, a signal in connection with an initiation of an increase of household

inventory of an item, in response to an indication of an updated status of the item, and where the

transmitted signal corresponds to a unique identifier of the wireless device and information about

the inventory of the item is stored in a database. Claim 110 further recites that the transmitted

information is recognized in connection with a successful transmission of the signal, that

information of a user account is communicated through a network communication channel, and

the item is associated with the wireless device.

150.   For the reasons set forth in Paragraphs 50 through 78, *supra*, the Accused Dash

Instrumentalities infringe claims 1 and 29 of the '443 patent.

151.   On information and belief, the Accused Dash Instrumentalities are used,

marketed, provided to, and/or used by or for each of Defendant's partners, clients, customers and

end users across the country and in this District.

152.   Defendant was made aware of the '443 patent and its infringement thereof at least

as early as August 8, 2017.

153.   Upon information and belief, since at least the time Defendant received notice,

Defendant has induced and continues to induce others to infringe at least one claim of the '443

patent under 35 U.S.C. § 271(b) by, among other things, and with specific intent or willful

blindness, actively aiding and abetting others to infringe, including but not limited to

Defendant's partners, clients, customers, and end users, whose use of the Accused Dash

Instrumentalities constitutes direct infringement of at least one claim of the '443 patent.

154.   In particular, Defendant's actions that aid and abet others such as its partners,

customers, clients, and end users to infringe include advertising and distributing the Accused

Dash Instrumentalities and providing instruction materials, training, and services regarding the

Accused Dash Instrumentalities. On information and belief, Defendant has engaged in such

actions with specific intent to cause infringement or with willful blindness to the resulting

infringement because Defendant has had actual knowledge of the '443 patent and knowledge that its acts were inducing infringement of the '443 patent since at least the date Defendant received notice that such activities infringed the '443 patent.

155.   Upon information and belief, Defendant is liable as a contributory infringer of the '443 patent under 35 U.S.C. § 271(c) by offering to sell, selling and importing into the United States wireless transmitters and central controllers to be especially made or adapted for use in infringement of the '443 patent. The Accused Dash Instrumentalities are a material component for use in practicing the '443 patent and are specifically made and are not a staple article of commerce suitable for substantial non-infringing use.

156.   Since at least August 8, 2017, Defendant's infringement has been willful.

157.   Plaintiff has been harmed by Defendant's infringing activities.

JURY DEMAND

Pursuant to Rule 38 of the Federal Rules of Civil Procedure, Plaintiff demands a trial by jury on all issues triable as such.

PRAYER FOR RELIEF

WHEREFORE, Plaintiff demands judgment for itself and against Defendant as follows:

A.   An adjudication that Defendant has infringed the '983, '918, '798, and '443 patents;

B.   An award of damages to be paid by Defendant adequate to compensate Plaintiff for Defendant's past infringement of the '983, '918, '798, and '443 patents and any continuing or future infringement through the date such judgment is entered, including interest, costs, expenses and an accounting of all infringing acts including, but not limited to, those acts not presented at trial;

C.   A declaration that this case is exceptional under 35 U.S.C. § 285, and an award of

Plaintiff's reasonable attorneys' fees; and

D.   An award to Plaintiff of such further relief at law or in equity as the Court deems

just and proper.

Dated: March 22, 2019   Respectfully submitted:

                                               /s/ Ryan S. Loveless
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